

BIOLOGIA GERAL E EXPERIMENTAL

**Calanoid of the families Diaptomidae, Pseudodiaptomidae, and
Centropagidae from Brasil**

Edinaldo Nelson dos Santos-Silva



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INTRODUCTION

“As the distribution maps of the Diaptomidae show, South America still has some large blank areas. The distribution for its entire tropical and subtropical regions is still scantily known” (Brandorff, 1976). Thirty-two years later we can see that this picture remains the same. In the particular case of Brasil we can add to the Amazon the inland water bodies of the southern and central-western regions as large blank areas. The distribution, with exceptions, are concentrated around particular points where the few research centres are established. Consequently the distribution presented here represent more the concentration of researchers than the animals’ natural distribution patterns. With the Pseudodiaptomidae we have a better picture, in spite of the paucity of large-scale studies along the Brazilian coast where the representatives of this family mainly occur. Following the revision of the New World species of *Pseudodiaptomus* by Walter (1989), we can perhaps add new records of known or introduced species, but the distributional ranges already identified will probably not change much. The southern family Centropagidae was reported as reaching at most just north of Buenos Aires, Argentina, until Gloeden (1994, 1997) recently recorded the occurrence of two species in Rio Grande do Sul, Brasil, the first records of this family in the country.

If one wants to begin gathering information about South American copepods, particularly in Brasil, the compilations by Björnberg (1964) and authors in Young (1998) are essential starting points. Herein, I present the distribution and historical background of genera in the families Diaptomidae (12 genera), Pseudodiaptomidae (1 genus), and Centropagidae (1 genus) occurring in Brasil.

FAMILY DIAPTOMIDAE

Nearly all species of freshwater calanoids, mainly Diaptomidae, discovered in South America were described under the name *Diaptomus* (sensu lato)

Westwood, 1836. The first calanoid described from South America was *Diaptomus brasiliensis* Lubbock, 1855 from Port-Désir, Patagonia, collected by Darwin. Later De Guerne & Richard (1889) created the genus *Boeckella* (Centropagidae) to accommodate *D. brasiliensis* and another species, *Boeckia triarticulata* Thomson, 1883, from New Zealand. Wright (1927) and Brandorff (1976) called the former species *Pseudoboeckella*, but Bayly (1992a) fused these two genera. Nicolet (in Gay, 1848-49) described *Cyclops longicornis* from Chile, but De Guerne & Richard (1889) said “Bien qu’elle ait été signalé sous le nom de *Cyclops*, le texte et les figures, malgré leur insuffisance, tendent à la faire rapporter au genre *Diaptomus*. Il serait cependant difficile de se prononcer catégoriquement.” Based on these observations they put this species under section “espèces insuffisamment décrites,” as *Diaptomus longicornis*. Wright (1927) observed that although the form was inadequately described, it was believed to belong to the genus *Boeckella*, following Giesbrecht & Schmeil (1898). *Diaptomus gibber* (Poppe in De Guerne & Richard, 1889), from Itajaí, Santa Catarina, Brasil, is undoubtedly the first representative of the Diaptomidae described from South America. Poppe (1891) described another species, *Diaptomus deitersi*, from Cuiabá in western Brasil. Dahl (1894) described, although insufficiently, the first diaptomid from the mouth of the Amazon River, *D. henseni*. Richard (1897a, b) and Mrázek (1901) added *Diaptomus bergi* and *Diaptomus michaelsoni* respectively. Sars (1901) in the same year, described three new species (*D. furcatus*, *D. coronatus* and *D. conifer*) reared in an aquarium from dried mud from the state of São Paulo, Brasil. Daday (1905) described *D. falcifer* and *D. anisitsi* from Paraguay. Tollinger (1911) was the next after the paper of De Guerne & Richard (1889) to show the distribution of calanoid copepods in South America. She showed the distribution of 10 species of *Diaptomus*, 15 species of Centropagidae and 3 species of Pseudodiaptomidae. Subsequently, two additional species were described by Douwe (1911), *D. gracilipes*

and *D. aculeatus*. Wright (1927) drew attention to the fact that probably *D. aculeatus* was identical with *D. furcatus* (Sars, 1901) and treated them as synonymous. Thiébaud (1912) described *D. colombiensis* from Colombia. This species was found by Juday in Guatemala and subsequently by Marsh in Panama. Juday submitted the species for publication as *D. marshi*. Marsh used Juday's descriptions in his paper, conceding him the authorship. However Marsh's paper was published in 1913, before Juday's paper, published in 1914, because of delay during publication. This caused some confusion about the authorship of the species, and later in establishing which name had priority. Almost everyone thought that Thiébaud's publication came out in 1914, with the whole volume of the journal, and not separately in 1912 as Kiefer (1936b) noted. I confirmed this asking for the front cover of that publication and the year printed there is undoubtedly 1912. Therefore *D. colombiensis* Thiébaud, 1912 is the valid name. Previously, Wilson (1953) had drawn attention to "the fact that Kiefer (1936b, p. 309) has shown that the species named *D. marshi* by Juday (1914) should be known as *D. colombiensis* Thiébaud. Kiefer has stated that Thiébaud's paper was actually published as a separate in 1912 instead 1924." Thus, 14 species of Diaptomidae had been described up to that time. Wright (1927) considered two of them identical with previously described species, giving a total of 12 valid species. Wright (1927) revised the known species of South American *Diaptomus*, based mainly on collections made by Miss Harriet Merrill in the years 1907 and 1908 and on previously published works. In that paper 9 new species were described. From that work until 1937, Wright described other new species of *Diaptomus*, and eventually (Wright, 1938b) summarised knowledge of this group in South America. Commenting about the relationships of South American Diaptomidae, Wright (1927) wrote that little could be said. However, he pointed out that some species were closely related, but others were so distinct that they would have to be the sole representatives of their

groups. Among those closely related he listed the most distinct and homogeneous group: *D. insolitus*, *D. calamensis*, and *D. flexipes*, which later became the genus *Rhacodiaptomus*. On that occasion Wright stated "it seems inadvisable, at this time, to make a formal division of the South American species into groups."

Brehm (1933a) proposed the genus *Argyrodiaptomus* to accommodate *D. bergi* Richard, 1897, *D. furcatus* Douwe, 1911, *D. aculeatus* Douwe, 1911, *D. spiniger* Brian, 1926, *D. denticulatus* Pesta, 1927, and one new species, *D. granulosus*, described by himself on that occasion.

Kiefer (1932) published a proposal for a system of the Diaptomidae from the Old World. Following this idea, in 1936 (Kiefer, 1936a), after examination of material from South America, created 6 new genera to include 18 *Diaptomus* species of the 41 then described. Nowadays 7 species remain as "*Diaptomus*" *sensu lato*. Kiefer (1936a) added *D. azevedoi* (Wright, 1935) to the previously known species included in the genus *Argyrodiaptomus* by Brehm (1933a), and excluded *D. spiniger*. The genera created by Kiefer (1936a) were *Notodiaptomus* (11 species), *Rhacodiaptomus* (3 species), *Dactylodiaptomus* (1 species), *Calodiaptomus* (1 species), *Odontodiaptomus* (1 species), and *Idiodiaptomus* (1 species).

Brandorff (1973b) erected the genus *Aspinus* with one new species (*Aspinus acicularis*). The species *D. coronatus* Sars, 1901 was transferred by Brandorff *et al.* (1982) to a new genus, *Trichodiaptomus*. This genus was considered a synonym of *Leptodiaptomus* Light, 1939, who because of an error had included the name *Trichodiaptomus* instead of *Eutrichodiaptomus* at some point in his work (Light, 1939: 474, 476). Defaye & Dussart (1993) noted that Brandorff *et al.* (1982) could not use the name *Trichodiaptomus* because it was already considered a synonym of *Leptodiaptomus*, and proposed the name *Dasydiaptomus* to replace it.

Brandorff (1976) published a fundamental work

on the geographic distribution of the Diaptomidae in South America. At that time the Diaptomidae included 60 species belonging to 10 genera; of these, 38 species occurred in Brasil.

In 1987 and 1997, two new genera were created by Reid (1987, 1997), the *Scolodiaptomus* and *Austrinodiaptomus*, respectively. The former received *Diaptomus corderoi* Sars, 1901, and the latter a new species *A. kleerekoperi* described by Reid (1997) and *Diaptomus inexpectatus* Brehm, 1958. Gaviria (1989) established a new genus for Colombia, *Colombodiaptomus*, to accommodate one species (*C. brandorffi*) and one subspecies (*C. brandorffi pilosa*). Subsequent to Kiefer's work (1936a) several new species were described and assigned to the known genera, but no one has attempted to redefine or clarify the taxonomical situation of this family.

Dussart (1985a) proposed four new subgenera (*Notodiaptomus*, *Wrightius*, *Caleodiaptomus*, and *Amazonius*) within the genus *Notodiaptomus*, but he did not define clearly these subgenera and his proposal was difficult to accept (Reid, 1987). Santos-Silva *et al.* (1999) redefined the genus *Notodiaptomus* and designated a neotype, to prevent further problems with its identity.

Nowadays the family Diaptomidae contains around 100 species belonging to 18 genera in the Neotropical Region; 55 species occur in Brasil. Their distribution and synonyms, and also the literature concerning this family in Brasil are presented herein.

Genus *Argyrodiaptomus* Brehm, 1933

This genus was proposed by Brehm and retained by Kiefer (1936a). Wright (1938a) objected to Kiefer's proposal because of its incompleteness and the inexactness of information concerning diaptomid species in South America. Wright (1938a) provided a diagnosis of what he called the "*Diaptomus bergi*" group and revised all the species which he included in this group: *Diaptomus granulatus*, *D. denticulatus*,

D. azevedoi, *D. bergi*, *D. argentinus*, *D. furcatus*, *D. aculeatus*, and one new species, *D. neglectus*. This is one of the most important papers concerning *Argyrodiaptomus*. Dussart (1985a), in another important contribution to knowledge of the genus, redescribed the 8 species known at that time. Dussart (1985b) described *Argyrodiaptomus robertsonae* from the Amazon region. This species had been previously confused with *A. denticulatus* (Dussart, 1985a). Reid (1997) described one new species, *A. nhumirim*, and raised *A. furcatus* var. *macrochaetus* Brehm, 1937 to species rank. This genus now has 14 species, 9 occurring in Brasil.

Argyrodiaptomus aculeatus (Douwe, 1911)

(Fig. 1)

Diaptomus aculeatus Douwe, 1911: 162, figs. 3-4; 1912: 312, figs. 6-12; Pesta, 1927: 70, 72, 80, figs. 3a-b; Brehm, 1933a: 283, 286; 1937a: 124; 1959: 505, 506, 507, 508, 518, 521, fig. 14; 1965: 3, 9; Wright, 1937a: 66, 74; 1938a: 297, 302; 1938b: 562; 1939: 647.

Diaptomus furcatus; Wright, 1927: 97.

Argyrodiaptomus aculeatus n. comb., Kiefer, 1936a: 195, 196; Brehm, 1958a: 165, 167; 1958b: 9; Ringuelet, 1958a: 44, 47; 1962: 87; Shen & Tai, 1964: 246; Brandorff, 1972: 40; 1976: 614, fig. 1; Paggi & José de Paggi, 1974: tab. 1; Löffler, 1981: 15; Dussart & Defaye, 1983: 131; Matsumura-Tundisi, 1986: 547; Battistoni, 1995: 958; Santos-Silva, 1998: 201.

Distribution: BRASIL. **São Paulo:** Itapura, at the western extremity of the state (Douwe, 1911; 1912). ARGENTINA. Middle Paraná River between the cities of Santa Fé and Paraná (Paggi & José de Paggi, 1974). **Buenos Aires:** Delta of Río Paraná, near Tigre, in June (Pesta, 1927); Hoya del Plata (Ringuelet, 1962).

Habitat: Pools, slowly flowing large rivers.

Argyrodiaptomus azevedoi (Wright, 1935)

(Fig. 1)

Diaptomus azevedoi Wright, 1935: 214, 219, 226, 228, 229, pl. 3, figs. 1-13, pl. 4; 1937a: 66, 73, 74; 1938a: 297, 299, pl. 1, fig. 1; 1938b: 562; Brehm, 1960: 50; Reid, 1991: 738, 740.

Argyrodiaptomus azevedoi n. comb., Kiefer, 1936a: 195, fig. 2; Brehm, 1958a: 164; 1958b: 6; Shen & Tai, 1964: 246; Brandorff, 1972: 5, 6, 7, 8, 14, 27, 41, figs. 33-39; 1973a: 346; 1976: 614, fig. 1; Andrade & Brandorff, 1975: 97; Löffler, 1981: 15; Sendacz & Kubo, 1982: 55; Dussart & Defaye, 1983: 132; Robertson & Hardy, 1984: tab. 3; Arcifa, 1984: 143, tab. 7; Dussart, 1985a: 206, fig. 4; Matsumura-Tundisi, 1986: 532, 547, figs. 1-4; Reid & Moreno, 1990: 728, 729; Reid, 1991: 738, 740; Santos-Silva, 1991: 33; 1998: 201; Sendacz, 1993: 35; Rocha *et al.*, 1995: 155, 156; Reid, 1997: 581, 586; Sendacz, 1997: 624, 625; Espíndola *et al.*, 2000: 179, 180, 185, 189, 190, 192, tab. 2, fig. 6.

Distribution: BRASIL. **Amazonas**: Lago da Piranha (Brandorff, 1972); affluent of the Rio Nhamundá (Brandorff *et al.*, 1982). **Pará**: Lago Jurucui, Rio Tapajós, Alter-do-Chão, near Santarém (Brandorff, 1972); Tucuruí Reservoir (Espíndola *et al.*, 2000). **Ceará**: near Fortaleza and Sobral (Wright, 1938a,b). **Paraíba**: small açude (artificial pond) on Olho d'Água farm, located near Açude Pilões, on the road to São João do Rio do Peixe (Wright, 1935). **Sergipe**: Betume, near Neópolis (Reid, 1997). **São Paulo**: Ilha Solteira Reservoir (Matsumura-Tundisi, 1986); Jupia Reservoir, Rio Paraná (Sendacz, 1997).

Habitat: Turbid pools, small man-made lake, floodplain lakes.

Argyrodiaptomus denticulatus (Pesta, 1927)

(Fig. 1)

Diaptomus bergi; Brian, 1926: 187.

Diaptomus denticulatus Pesta, 1927: 75, 80, figs. 3c-d; Brian, 1927: 128, figs. 1-5; Wright, 1935: 228; 1937a: 74; 1938a: 297, 298, pl. 1, figs. 4-7; 1938b: 562; 1939: 646; Brehm, 1965: 3, 6, 7, 8, 10.

Argyrodiaptomus denticulatus n. comb., Brehm, 1933a: 283, 286; 1958a: 164; 1958b: 5, figs. 84-92; 1959: 521; 1960: 52; Kiefer, 1936a: 195, 196; Ringuelet, 1958a: 43, 46, 49; 1962: 87; Shen & Tai, 1964: 246; Brandorff, 1972: 41; 1976: 614, 620, fig. 1; José de Paggi, 1978: 150, tab. 1; Löffler, 1981: 15; Dussart & Defaye, 1983: 131; Dussart, 1985a: 204-206, fig. 3 (= *A. robertsonae*); 1985b: 276, 278, pl. 1, figs. 1-8; Matsumura-Tundisi, 1986: 547; José de Paggi & Paggi, 1988: 101, tab. 2; Paggi & José de Paggi, 1990: 690, 692, tab. 2; Reid & Moreno, 1990: 728; Santos-Silva, 1991: 33; Gloeden, 1993: 91-92; Frutos, 1993: 90, 91, 93, 112, tab. 3; Battistoni, 1995: 958; Santos-Silva, 1998: 201; Bohrer & Araújo, 1999: 93, 94, 96, figs. 5-7.

Distribution. BRASIL. **Rio Grande do Sul**: Lagoa dos Patos (Gloeden, 1993; Bohrer & Araújo, 1999). BOLIVIA. Beni (Brandorff, 1976). ARGENTINA. Middle Paraná River (Paggi & José de Paggi, 1990); main course of the Paraná River between Santa Fe and Buenos Aires (José de Paggi, 1978). **Buenos Aires**: Abra Nueva, delta of Río Paraná, Tigre (Pesta, 1927); Hoya del Plata (Ringuelet, 1962). **Capital Federal**: Artificial lake, Palermo (Brian, 1926); Lago del Vivero, near Golf Station, Palermo (Wright, 1938a, 1939). **Catamarca**: Bañado (Brehm, 1958b); Recreo (Brehm, 1965). **Chaco**: Río Barranqueras (Brehm, 1965). **Córdoba**: La Puerta (Ringuelet, 1958a); San Marcos and Los Gigantes (Brehm, 1958b); La Puerta, Ballesteros; Casitas Viejas; Totolejos; Orcosuma; Lucio Mansilla; Oliva; Villa Dolores; Totaralejos; Marulb; Lucio. V. Mansilla (Brehm, 1965). **Corrientes**: (Dussart, 1985a); Laguna 1, Isla del Cerrito, Río Paraná and Laguna 2, Isla Nueva Cerrito, Río Paraná (Frutos, 1993). **La Rioja**: Gob Gordillo and Ghanar (Brehm, 1965). **Salta**: Km 56

(Ringuelet, 1958a); Mojoa and Mogotes (Brehm, 1965). **San Luis:** San Francisco and Las Palomas (Brehm, 1965). **Santa Fé:** Guadalupe (Ringuelet, 1958a); Santa Fé River (José de Paggi & Paggi, 1988). **Tucuman:** Taff Vieje and Río Hondo, on the way to Tucuman (Brehm, 1965).

Habitat: Artificial lake, shallow lake, and turbid pool.

Argyrodiaptomus furcatus (Sars, 1901)

(Fig. 1)

Diaptomus furcatus Sars, 1901: 11-13, pl. II, figs. 1-15; Daday, 1905: 148, 149, 151, 152; Tollinger, 1911: 66, 272, 273, fig. B; Wright, 1927: 73, 75, 97, 100, 102, pl. IX, figs. 1-4; 1935: 228; 1937a: 66, 72, 73, 74, 76, 77, pl. 2, figs. 6-12; 1938a: 297, 301, pl. 2, fig. 2; 1938b: 562; 1939: 647; Pesta, 1927: 70, 72, 75, 80, fig. 4e; Brehm, 1939: 40, fig. 1; 1959: 505, 506, 507, 508, 518, 521, fig. 13; 1965: 3, 5, 7, 8; Kleerekoper, 1944; Rocha & Matsumura-Tundisi, 1976: 2, pl. 1, figs. 1-5, pl. 2, figs. 1-4, pl. 3, figs. 1-7; Gouvêa, 1980: 1047.

Argyrodiaptomus furcatus n. comb., Brehm, 1933a: 286; Kiefer, 1936a: 195, 196; Brehm, 1937a: 122, 124; 1958a: 165; 1958b: 8, 9, 10, figs. 93-97; Ringuelet, 1958a: 44, 47, 50; 1962: 87; Shen & Tai, 1964: 246; Brandorff, 1972: 41; 1973a: 346; 1976: 614, fig. 1; Paggi & José de Paggi, 1974: tab. 1; Löffler, 1981: 15; Sendacz & Kubo, 1982: 54, 55, 66, 71, figs. 4-8, tab. 3; 1999: 517, 526; Dussart & Defaye, 1983: 131; Matsumura-Tundisi & Rocha, 1983: 1, pl. 1, fig. 1a-c; Matsumura-Tundisi & Okano, 1983: 35, 37, 38; Arcifa, 1984: 142, 143, tab. 7; Sipaúba-Tavares & Matsumura-Tundisi, 1984: 15-23; Barbosa & Matsumura-Tundisi, 1984: 175-177, 179, 180, tabs. 4, 5; Rocha & Matsumura-Tundisi, 1984: 307, 309, 310, figs. 2-5, tab. 1; Sendacz *et al.*, 1984: 1629; 1985: 190, 193, 195, 196, 201, 203, 205, 207, tabs. 6, 8, 10, 12; Matsumura-Tundisi, 1985: 130-132, 137-139, figs. 3, 10, 11;

1986: 532, 537, 547, 552, figs. 5-8; Dussart, 1985a: 202, 203, fig. 1; Dussart & Matsumura-Tundisi, 1986: 249, 254; Reid *et al.*, 1988: 533, 536, fig. 2; Cicchino *et al.*, 1989: 101; Reid & Moreno, 1990: 728, 729; Lansac-Tôha *et al.*, 1992: 43, 45, 47, 51, fig. 3; Tomm *et al.*, 1992: 57, 58, 64, 65, 69; Durigan *et al.*, 1992: 211, 217-220, 222, figs. 4-7; Bachion & Sipaúba-Tavares, 1992: 371, 374, 376, 381-384; Rolla *et al.*, 1992: 149, 156, tab. 5; Frutos, 1993: tab. 3; Reid & Pinto-Coelho, 1994: 96, 97, 98, 99; Tundisi & Matsumura-Tundisi, 1994: 25; 1995a: 252; 1995b: 231, 232; Battistoni, 1995: 958; Rocha *et al.*, 1995: 155, 156, 157, 159; Lansac-Tôha *et al.* 1995: 67, 69, 71, 75; Campos *et al.*, 1996: fig. 4; Lima *et al.*, 1996: 114, 115, fig. 3; Nogueira & Panarelli, 1997: 65, tab. 4; Rocha & Matsumura-Tundisi, 1997: 286, 289, 291-294, tabs. 6-10; Matsumura-Tundisi, Okano & Tundisi, 1997: 300-302, 304, fig. 4; Matsumura-Tundisi, Tundisi *et al.*, 1997: 384, 387, tab. 4; Tundisi *et al.*, 1997: 434, tab. 11; Saijo & Tundisi, 1997: 489; Reid, 1997: 586, 592; Sendacz, 1997: 624, 625; Lansac-Tôha *et al.*, 1997: 140, 141, 146, 147, tab. 3; Santos-Silva, 1998: 202; Caleffi, 1998: 1900; Henry & Nogueira, 1999: 667, 668, tab. 4; Garrido, 1999: 30, 32; Matsumura-Tundisi, 1999: 44, 46; Melão, 1999: 155, 177, 179, 180, tab. 5; Espíndola *et al.*, 2000: 192.

Argyrodiaptomus furcatus furcatus Rocha & Matsumura-Tundisi, 1997: 289, 291-293, tabs. 6-7; Matsumura-Tundisi *et al.*, 1997: 300-304, 306, fig. 4.

Argyrodiaptomus furcatus; Durigan *et al.*, 1992: 222. [error]

Argyrodiaptomus furcatu; Durigan *et al.*, 1992: 220, fig. 7. [error]

Distribution. BRASIL. **Mato Grosso do Sul:** Upper Paraná River floodplain area, near Nova Andradina (Lansac-Tôha *et al.*, 1992); Lake Pousada das Garças, floodplain of Upper Paraná River (Lansac-Tôha *et al.*, 1995); Guaraná Lake and Baía River, Paraná River Basin (Lima *et al.*, 1996); lakes Pousada das Garças, Fechada,

Patos, and Guaraná and Rivers Curutuba, Baía, Ivinheima, Paraná, and Cortado (Lansac-Tôha *et al.*, 1997). **Minas Gerais**: Lake Dom Helvécio, Rio Doce valley, 19°10'S, 42°01'W (Okano, 1980; Matsumura-Tundisi & Okano, 1983; Matsumura-Tundisi, 1985; Matsumura-Tundisi, 1997; Matsumura-Tundisi *et al.*, 1997, pp. 373-390; 1997, pp. 297-307; Rocha & Matsumura-Tundisi, 1997); lake Palmeiras, Rio Doce valley (Tundisi *et al.*, 1997); Rio Doce valley (Saijo & Tundisi, 1997); Rio Grande, 19°45'-20°15'S, 47°15'W (Rolla *et al.*, 1992). **Rio de Janeiro**: Petrópolis (Wright, 1937a). **São Paulo**: mud from São Paulo (Sars, 1901); Itapura (Wright, 1927); lakes near Sorocaba and Campinas; shallow pool near Amparo (Wright, 1937a); floodplain ponds of Rio Tietê (Kleerekoper, 1944); Broa Reservoir, São Carlos (Rocha & Matsumura-Tundisi, 1976; Sipaúba-Tavares & Matsumura-Tundisi, 1984; Barbosa & Matsumura-Tundisi, 1984; Rocha & Matsumura-Tundisi, 1984); Itupararanga Reservoir, Rio Tietê basin (Sendacz & Kubo, 1982); Itupararanga Reservoir, Rio Tietê basin (Sendacz *et al.*, 1985); Rio Grande Reservoir (Sendacz *et al.*, 1984; Reid & Pinto-Coelho, 1994); Jupia Reservoir, Paraná River (Sendacz, 1997); Guarapiranga Reservoir (Caleffi, 1998); fish culture ponds, Jaboticabal, Centro de Aquicultura da UNESP (Durigan *et al.*, 1992); shrimp culture ponds, Jaboticabal, Centro de Aquicultura da UNESP (Bachion & Sipaúba-Tavares, 1992); Jurumirim Reservoir (23°08'-23°35'S, 48°30'-49°13'W), Paranapanema River basin (Nogueira & Panarelli, 1997; Henry & Nogueira, 1999); Billings Reservoir (Sendacz & Kubo, 1999). **Paraná**: Itaipu Reservoir (Matsumura-Tundisi, 1986; Tomm *et al.*, 1992); Upper Paraná River floodplain area, near Porto Rico (Lansac-Tôha *et al.*, 1992); lagoons Clara, Figueira, and Canal do Meio, Porto Rico Island, 22°45'S and 53°16'W (Campos *et al.*, 1996). **ARGENTINA**. Middle Paraná River between the cities of Santa Fé and Paraná (Paggi & José de Paggi, 1974). **Buenos Aires**: Abra Nueva at delta of Río Paraná, near Tigre (Pesta, 1927); sample 93 of Chacabuco (Brehm, 1958b); Laguna Hoya del Plata (Ringuelet, 1962). **Chaco**: Saenz Peña (Brehm, 1965). **Corrientes**: Laguna 1, Isla del

Cerrito, Río Paraná (Frutos, 1993); Laguna 2, Isla Nueva Cerrito, Río Paraná (Frutos, 1993); Puerto Valle, Yacyretá Reservoir (27°28'S, 56°44'W), Upper Paraná River (Garrido, 1999). **URUGUAY** (Brehm, 1939).

Habitat: Slowly flowing large rivers, lakes, and reservoirs.

Argyrodiaptomus furcatus exilis Dussart, 1985
(Fig. 1)

Argyrodiaptomus exilis Dussart, 1985a: 202-204 (Fig. 2).

Argyrodiaptomus furcatus exilis Dussart & Matsumura-Tundisi, 1986: 249, 253-254, fig. 3; Reid *et al.*, 1988: 528, 533-534, 536; Matsumura-Tundisi & Tundisi, 1986: 37-39, tabs. 1, 2; 1995: 252; Rocha & Matsumura-Tundisi, 1997: 289, 291-292, tabs. 6-7; Matsumura-Tundisi *et al.*, 1997: 300-304, 306, fig. 4; Santos-Silva, 1998: 202.

Argyrodiaptomus furcatus f. *exilis* Matsumura-Tundisi, 1986: 537, 546, 551, 552, figs. 78-80, 100; Reid & Pinto-Coelho, 1994: 93, 95, 96-99; Reid, 1997: 586, 592.

Argyrodiaptomus furcatus cf. *exilis*; Rolla *et al.*, 1990: 241, tab. 6.

Argyrodiaptomus furcatus (Sars) [partim]; Okano, 1980: 4, 52, 55, 81-98, 143-150, 152-155, fig. 10, tab. 3, schema 1; Tundisi & Matsumura-Tundisi, 1981: 206; Matsumura-Tundisi & Okano, 1983: 35, 37, 38; Rocha *et al.*, 1990: 93-94, tabs. 2, 6.

Argyrodiaptomus furcatus furcatus; Matsumura-Tundisi & Tundisi, 1995: 252.

Distribution. **BRASIL**. **Minas Gerais**: Lake Dom Helvécio (Okano, 1980; Matsumura-Tundisi & Okano, 1983; Dussart, 1985a; Matsumura-Tundisi, 1986; Matsumura-Tundisi & Tundisi, 1981; 1995). **Minas Gerais/São Paulo**: Volta Grande Reservoir (19°57'52"-20°10'00"S, 48°25'-47°35'W) (Rolla *et al.*, 1990).

Habitat: Natural lakes and reservoirs.

Comments: re-examination of the type material is necessary to resolve the uncertainty concerning the rank of this taxon.

Argyrodiaptomus macrochaetus Brehm, 1937
(Fig. 1)

Argyrodiaptomus furcatus var. *macrochaetus* Brehm, 1937a: 122-125, figs. 3, 4; Dussart & Defaye, 1983: 131.

Argyrodiaptomus furcatus macrochaetus; Dussart, 1984a: 63.

Argyrodiaptomus macrochaetus, new rank, Reid, 1997: 587, figs. 17-31.

Distribution. BRASIL. **Rio Grande do Sul**: temporary pools near Porto Alegre (Reid, 1997). URUGUAY. Mouth of La Plata River (Brehm, 1937a).

Habitat: Apparently this is a species of temporary pool.

Argyrodiaptomus neglectus (Wright, 1938)
(Fig. 1)

Diaptomus neglectus Wright, 1938a: 297, 302, pl. 2, figs. 3, 7-8; Reid, 1991: 740.

Argyrodiaptomus neglectus n. comb., Brehm, 1958a: 165; 1959: 521; Brandorff, 1972: 42; 1976: 614, fig. 1; Löffler, 1981: 15; Dussart & Defaye, 1983: 132; Reid *et al.*, 1988: 533, 536, fig. 2; Reid, 1991: 740; 1997: 586; Santos-Silva, 1998: 202.

Distribution. BRASIL. **Minas Gerais**: Pool at Jaguará, near Belo Horizonte (Wright, 1938a).

Habitat: Pool.

Argyrodiaptomus nhumirim Reid, 1997
(Fig. 1)

Argyrodiaptomus sp.; Reid & Moreno, 1990: 725-728, tab. 2.

Argyrodiaptomus nhumirim Reid, 1997: 581-587, figs. 1-16.

Distribution. BRASIL. **Mato Grosso do Sul**: Baía da Carandazal (Baía 29) and Baía 57, Fazenda Nhumirim, 18°59'S, 56°39'W (Reid, 1997).

Habitat: Lakes.

Argyrodiaptomus robertsonae Dussart, 1985
(Fig. 1)

Argyrodiaptomus denticulatus; Dussart, 1985a: 204-206, fig. 3.

Argyrodiaptomus robertsonae Dussart, 1985b: 277, 278, pl. 2, figs. 1-10; Magalhães *et al.*, 1988: 270; Santos-Silva *et al.*, 1989: 726, 727, figs. 1-25; Reid & Moreno, 1990: 728; Santos-Silva, 1991: 33, figs. 9, 15, 16, 17, 18, 19, 20; 1998: 202; Sendacz, 1993: 35; Rocha *et al.*, 1995: 154, 156; Reid, 1997: 584, 586.

Distribution. BRASIL. **Amazonas**: Lago Calado, 03°15'S, 60°34'W (Santos-Silva, 1991). **Pará**: between Tapajós and Xingu rivers (Dussart, 1985a); Curuá-Una Reservoir, 02°48'S, 54°18'W (Dussart, 1985b; Santos-Silva *et al.*, 1989).

Habitat: Man-made lakes, floodplain lakes.

Genus *Aspinus* Brandorff, 1973

This genus was established by Brandorff to accommodate a species distinct from all known *Diaptomus* sensu lato. Up to now this species was

recorded only in the Brazilian Amazon region. Because Brandorff did not clearly designate the holotype, Hardy *et al.* (1984) chose the male as the lectotype. Although Brandorff referred to this species in an unpublished thesis (1972), the formal description of this species was only provided in 1973.

Aspinus acicularis Brandorff, 1973
(Fig. 2)

Aspinus acicularis Brandorff, 1972: 4, 7, 34, figs. 59-66; 1973b: 206, 210, pl. 5, figs. 1-7, pl. 6, figs. 1-5; 1976: 618, fig. 3; Hardy, 1980: 594, 596, 604, 605; Löffler, 1981: 15; Brandorff *et al.*, 1982: 76, 103, 109, 112; Dussart & Defaye, 1983: 141; 1995: 178, fig. L71; Hardy *et al.*, 1984: 529; Robertson & Hardy, 1984: 347, tab. 3; Arcifa, 1984: 143, tab. 7; Matsumura-Tundisi, 1986: 537, 547, 551, 552, figs. 13-15; Magalhães *et al.*, 1988: 270; Bozelli, 1992: 254, 257, tab. 6; Rocha *et al.*, 1995: 154, 157; Santos-Silva, 1998: 203.

Distribution. BRASIL. **Amazonas:** Rio Negro, right side of Tamaquaré Island (Brandorff, 1972, 1973b); Lago Cristalino, Rio Negro, near Manaus (Hardy, 1980; Matsumura-Tundisi, 1986); Rio Preto da Eva (Brandorff *et al.*, 1982); Rio Nhamundá between the villages of Nhamundá and Faro; affluent of Rio Nhamundá; Rio Daquiri, affluent of the Rio Nhamundá (Brandorff *et al.*, 1982). **Pará:** Lago Grande Curuay, floodplain (várzea) lake west of Tapajós River, in front of Nova Itália Farm (Brandorff, 1972; 1973b); upper course of the Rio Xuedá with a lake-like extension; upper course of the Rio Xuedá, between flooded trees (Igapó; ria-lake of Rio Xuedá; Rio Maracanã at the mouth of Rio Xingú; Rio Maracanã opposite the village of Maracanã (Brandorff *et al.*, 1982); Rio Trombetas; Lago Batata, Rio Trombetas, 01°30'S, 56°20'W; Lago Mussurá, Rio Trombetas, 01°15'S, 56°20'W (Bozelli, 1992).

Habitat: Floodplain lakes, clear and black waters.

Genus *Austrinodiptomus* Reid, 1997

This genus was created by Reid (1997) to include populations from Rio Grande do Sul, southern Brasil, formerly included in *D. inexpectatus*. She described these Brazilian populations as *A. kleerekoperi*. The remaining populations of *D. inexpectatus*, from Argentina, were transferred to this new genus, and named *A. inexpectatus* (see Reid, 1997, for further explanation).

Austrinodiptomus kleerekoperi Reid, 1997
(Fig. 2)

Diaptomus s.l. *inexpectatus* Brehm, 1958a: 149-152, fig. 3; Brandorff, 1972: 50 (*partim*); 1973a: 342 (*partim*).

Diaptomus s.l. *inexpectatus*; Brandorff, 1976: 618 (*partim*); Dussart & Defaye, 1983: 64 (*partim*); Dussart, 1984a: 64 (*partim*); Battistoni, 1995: 958 (*partim*); Santos-Silva, 1998: 204.

Rhacodiptomus inexpectatus n. comb., Brehm, 1965: 3, 11-14, fig. 1 (*partim*).

Austrinodiptomus kleerekoperi Reid, 1997: 594-599, figs. 32-59.

Distribution. BRASIL. **Rio Grande do Sul:** temporary pool near Porto Alegre (Reid, 1997).

Habitat: Temporary pools.

Genus *Calodiptomus* Kiefer, 1936

In 1927, Wright described *Diaptomus perelegans* and *Diaptomus merrillae* and commented, "The relationship of *D. merrillae* and *D. perelegans* is undoubted." Brehm (1935a) also commented on the

relationships among a group of species, and provided a key to identify each. In this group Brehm joined *D. marshi* Juday (in Marsh, 1913), *D. diabolicus* Brehm, 1935, *D. echinatus* Lowndes, 1934, *D. carinifera* Lowndes, 1934, *D. anisitsi* Daday, 1905, *D. perelegans* Wright, 1927, *D. merrillae* Wright, 1927 and *D. granulatus* Brehm, 1933, but never proposed any taxonomic category for them. Kiefer (1936a), when establishing the genus *Calodiaptomus*, did not give a diagnosis or any additional reason, other than that presented by Wright (1927) or Brehm (1935a). He listed only *D. merrillae* as belonging to the new genus. Later, Brehm (1958c) commented on the systematic features of *D. perelegans* and *D. anisitsi* after examining some populations of *D. anisitsi* from Argentina. He did not identify the populations from Calchaqui and Yema as *D. perelegans* or *D. anisitsi*, because they presented characteristics of both species, and also very different ones. Because of that he called them, temporarily, “*bidigitatus*”. In 1965, Brehm returned to the problem, and mentioned that he called the populations from those localities “*bidigitatus*-group” because of their variability and relationship with “*Notodiaptomus perelegans*.” Unfortunately he never provided a formal description of this group or raised it to species rank. This attitude caused problems, as will be discussed in the section on the genus *Notodiaptomus*. Brandorff (1976) was the first to include the species described as *D. perelegans* in the genus *Calodiaptomus*, but without providing a justification. Up to the present, species of the genus *Calodiaptomus* have been found only in the Amazon Region. The need for revision and redefinition of this genus seems clear.

Calodiaptomus merrillae (Wright, 1927)

(Fig. 2)

Diaptomus merrillae Wright, 1927: 74, 75, 80, 102, pl. 2, figs. 4-8; 1938b: 562; Brehm, 1935a: 12, 13; Reid, 1991: 736, 737.

Calodiaptomus merrillae n. comb., Kiefer, 1936a: 199; Brehm, 1958a: 166; Brandorff, 1972: 42; 1976: 614, fig. 1; Andrade & Brandorff, 1975: 97; Löffler, 1981: 15; Dussart & Defaye, 1983: 133; 1995: 166, fig. L61; Robertson & Hardy, 1984: tab. 3; Reid, 1991: 736, 737; Sendacz & Melo Costa, 1991: 466, 468, 469; Rocha *et al.*, 1995: 156; Santos-Silva, 1998: 203.

Distribution. BRASIL. **Amazonas**: Lago Novo Andirá, Rio Acre (Sendacz & Melo Costa, 1991). **Acre**: (Brandorff, 1976); Lago Amapá, Rio Acre (present report). **Rondônia**: South pond, Calama, Rio Machado/Ji-Paraná (Wright, 1927). (Calama, formerly in Amazonas, is now in the state of Rondônia.) BOLIVIA. Beni (Brandorff, 1976).

Habitat: Turbid pools, flooded lands, lakes.

Calodiaptomus perelegans (Wright, 1927)

(Fig. 2)

Diaptomus perelegans Wright, 1927: 75, 78, 100, 102, pl. 1, fig. 10, pl. 2, figs. 1-3; 1938b: 562; Brehm, 1935a: 12, 13; 1958a: 151, 166; 1960: 52; Brandorff, 1972: 52; Andrade & Brandorff, 1975: 97; Reid, 1991: 736, 737, 738.

Notodiaptomus perelegans n. comb., Brehm, 1958c: 576, 577, 578, 579.

Calodiaptomus perelegans n. comb., Brandorff, 1976: 614, fig. 1; Löffler, 1981: 15; Dussart & Defaye, 1983: 133; Dussart & Robertson, 1984: 391; Robertson & Hardy, 1984: tab. 3; Reid, 1991: 736, 737, 738; Sendacz & Melo Costa, 1991: 466, 468, 469; Rocha *et al.*, 1995: 156; Santos-Silva, 1998: 203.

Distribution. BRASIL. **Amazonas**: Lago Lua Nova, Rio Acre (Sendacz & Melo Costa, 1991). **Acre**: (Brandorff, 1976); Lago Amapá, Rio Acre (present report). **Rondônia**: South pond, Calama, Rio Machado/Ji-

Paraná, and pool in town of Calama (Wright, 1927).
BOLIVIA. Beni (Brandorff, 1976).

Habitat: Turbid pools, flooded lands, lakes.

Genus *Dactylodiaptomus* Kiefer, 1936

This genus has only one species, *D. pearsei*, described by Wright (1927), which is very different from other members of *Diaptomus* sensu lato. Brandorff *et al.* (1982), studying calanoid species from the Nhamundá region, commented: "Apparently Wright (1927) had added to the male a misidentified female," and furnished a description of a female that he thought was the correct one. Dussart (1984a), studying species from the Orinoco basin, found only the males corresponding to those described by Wright (1927) as *D. pearsei*. The females found together with those males were considered as belonging to *Dactylodiaptomus pearsei*, but differed from the female described by Wright (1927). Dussart also provided a description of those females. Reid (1991) commenting on this problem, stated that Brandorff *et al.* (1982) and Dussart (1984a) presented descriptions of similar but not identical females ascribed to *D. pearsei*. Santos-Silva *et al.* (1989), studying the copepods of Curuá-Una Reservoir, State of Pará, Brasil, found among the calanoids occurring there the same male described by Wright (1927); however, the females were different, similar to those described and figured by Brandorff *et al.* (1982) and Dussart (1984a). This species has a wide distribution in the Amazon basin and probably also in the Orinoco. These studies confirmed that Wright (1927) added a misidentified female to the male of *D. pearsei*.

Dactylodiaptomus pearsei (Wright, 1927)
(Fig. 3)

Diaptomus pearsei Wright, 1927: 74, 75, 81, 100, 102,

pl. 3, figs. 1-5; 1938b: 562; Reid, 1991: 736, 737, 738, 740.

Dactylodiaptomus pearsi n. comb., Kiefer, 1936a: 198; Brehm, 1958a: 165; Dussart & Defaye, 1983: 140; Robertson & Hardy, 1984: tab. 3. [error]

Dactylodiaptomus pearsei; Brandorff, 1972: 3, 11, 36, 42, figs. 1-4; 1973a: 345; 1976: 614, fig. 1; Andrade & Brandorff, 1975: 97, 103; Löffler, 1981: 15; Brandorff *et al.*, 1982: 76, 103, figs. 100-103; Dussart, 1984a: 34, 35, 39, 51, 56, 64, fig. 12; Arcifa, 1984: 143, tab. 7; Santos-Silva *et al.*, 1989: 726, 727, figs. 26-46; Reid, 1991: 736, 737, 738, 740; Bozelli, 1992: 248, 254, 257, tab. 6; Cicchino, 1994: 145, fig. 15; Dussart & Defaye, 1995: 169, fig. L65; Santos-Silva, 1998: 203.

Dactylodiaptomus persei Rocha *et al.*, 1995: 156, tab. II. [error]

Distribution. BRASIL. **Roraima**: Rio Branco (Brandorff, 1976). **Amazonas**: Santo Antônio do Içá, River Solimões (Amazonas) (Brandorff, 1972; Santos-Silva *et al.*, 1989); Rio Tarumã Mirim, near Manaus (Brandorff, 1976); Lago do Castanho; Lago Camaleão; Paraná do Rei (Santos-Silva *et al.*, 1989); flooded meadow of the Rio Nhamundá (Brandorff *et al.*, 1982); Lago Amanã (Santos-Silva & Robertson, 1993). **Pará**: Curuá-Una Reservoir, 02°48'38"S, 54°18'55"W (Santos-Silva *et al.*, 1989); lake of Terra Santa; flooded meadow near the village of Terra Santa (Brandorff *et al.*, 1982); Rio Trombetas; Lago Batata, Rio Trombetas, 01°30'S, 56°20'W; Lago Mussurá, Rio Trombetas, 01°15'S, 56°20'W (Bozelli, 1992). **Rondônia**: South pond, Calama, Rio Machado/Ji-Paraná (Wright (1927); São Pedro stream, Rio Jamarí basin (Santos-Silva *et al.*, 1989). VENEZUELA. **Bolívar**: Río Orinoco, right side, at Ciudad Bolívar (Dussart, 1984a). **Monagas**: Río Orinoco at Barrancas.

Habitat: Ponds, lakes.

Genus *Dasydiaptomus* Defaye & Dussart, 1993

Dasydiaptomus coronatus, originally described by Sars (1901) as *Diaptomus coronatus* from the state of São Paulo, Brasil is the sole species belonging to the genus *Dasydiaptomus*. Wright (1927) added morphological details to Sars' description from populations in Santarém, state of Pará, and the state of São Paulo, Brasil. Thomasson (1953) described *Diaptomus melini*, a similar species from Manaus, state of Amazonas, Brasil. Subsequently Brehm (1960) cited this species as *Notodiaptomus coronatus* without providing any reason. Dussart & Defaye (1983) and Dussart (1984a) followed Brehm. Later, Brandorff *et al.* (1982) synonymized Thomasson's species with *Diaptomus coronatus* (Sars, 1901) and proposed a new genus, *Trichodiaptomus*, to accommodate it. Until Reid's (1990) redescription of this species, it had been recorded in recent decades only from several sites in the Amazon and once from the Orinoco Delta. Reid (1990) presented new records from the Distrito Federal and the states of Goiás and Minas Gerais, and the first record from the Rio São Francisco basin. She also discussed its ecological requirements. Later Defaye & Dussart (1993) proposed *Dasydiaptomus* as a new name for this genus, because *Trichodiaptomus* is preoccupied, Light (1939) having used it for *Diaptomus ashlandi*. The redescription presented by Reid (1990) is, up to now, the most complete.

Dasydiaptomus coronatus (Sars, 1901)

(Fig. 4)

Diaptomus coronatus Sars, 1901: 14, pl. 3, figs. 9-17; Daday, 1905: 151, 152; Tollinger, 1911: 66, 270, 271, fig. A; Pesta, 1927: 80; Wright, 1927: 73, 74, 75, 90, 100, pl. 6, figs. 7-9; 1937a: 66, 72, 79, pl. 3, figs. 5-8; 1938b: 562; Brehm, 1933c: 221; 1958a: 140, 142, 168; Brandorff, 1972: 8, 9, 20, 48, figs. 19-26; Cipólli & Carvalho, 1973: 95, 97, 98, 100, 101, tab. 2; Paggi, 1976b: 91.

Diaptomus aff. *coronatus*; José de Paggi, 1978: 150, tab. 1; 1981: 199.

"*Diaptomus*" *coronatus*; Andrade & Brandorff, 1975: 97, 103; Brandorff, 1976: 618, 622, fig. 3; 1978b: 1201; Löffler, 1981: 15; Robertson & Hardy, 1984: tab. 3.

Diaptomus melini Thomasson, 1953: 193, 194, pl. 3, figs. 1a-c; 1955: 214; Brandorff, 1972: 20, 21, 51.

"*Diaptomus*" *melini*; Andrade & Brandorff, 1975: 102. *Notodiaptomus coronatus* n. comb., Brehm, 1960: 49; Dussart & Defaye, 1983: 134; Dussart, 1984a: 34, 39.

Rhacodiaptomus Melini n. comb., Brehm, 1965: 15.

Rhacodiaptomus Mileni; Brehm, 1965: 15.

Trichodiaptomus coronatus n. comb., Brandorff *et al.*, 1982: 76, 104, 106, figs. 104-110; Arcifa, 1984: 143, tab. 7; Dussart, 1985a: 201; Matsumura-Tundisi, 1986: 547, figs. 89-94; Reid, 1990: 140, figs. 1-22, tab. 1; Santos-Silva & Robertson, 1993: 101; Rocha *et al.*, 1995: 157; Sendacz & Kubo, 1999: 526.

Dasydiaptomus coronatus n. comb., Defaye & Dussart, 1993: 127; Cicchino, 1994: 145, fig. 13; Dussart & Defaye, 1995: 173, fig. L68; Lopes *et al.*, 1997: 45, tab. 1c; Santos-Silva, 1998: 204.

Distribution. **BRASIL. Amazonas:** Rio Negro, near Manaus (Thomasson, 1953); Rio Apocoitana, in the vicinity of Maués (Brandorff, 1972); Tarumã-Mirim, Rio Negro (Brandorff, 1978b); flooded meadow of the Rio Nhamundá (Brandorff *et al.*, 1982); Lago Cristalino, Rio Negro, near Manaus (Matsumura-Tundisi, 1986). **Pará:** bayou west of Santarém (Wright, 1927); Lago Jurucuí, near Alter-do-Chão, Rio Tapajós (Brandorff, 1972); Igarapé Jari-Mirim, Ariacana, Rios Guamá/Capim (Cipólli & Carvalho, 1973); flooded area near Lago Timbiras, Caranandeua (Cipólli & Carvalho, 1973); Igarapé São Lourencinho, Furo Panaquera (Cipólli & Carvalho, 1973); Lago Terra Santa (Brandorff *et al.*, 1982); flooded meadow near the village of Terra Santa (Brandorff *et al.*, 1982); upper course of Rio Xuedá, between flooded trees (Brandorff *et al.*, 1982).

Distrito Federal: Santo Antônio do Descoberto Reservoir, 15°44'S, 48°10'W, and Lagoa Bonita,

15°34'S, 47°10'W (Reid, 1990). **Goiás**: Santo Antônio do Descoberto Reservoir (Reid, 1990); Lagoa Formosa, 15°30'S, 47°36'W (Reid, 1990). **Minas Gerais**: Lagoas Tacho, Paiano and Cipó (Reid, 1990); Pirapora, 17°20'55"S, 44°57'00"W (Reid, 1990). **São Paulo**: reared in aquaria from mud (Sars, 1901); Guarapiranga Reservoir (Wright, 1937a). **Paraná**: Iguaçu basin, Segredo Reservoir: sampling sites Areia and Linígrafo (Lopes *et al.*, 1997). **VENEZUELA**. **Delta Amacuro**: Caño Guara near Tucupita, Orinoco delta (Dussart, 1984a). **ARGENTINA**. Main course of the Paraná River between Santa Fe and Buenos Aires (José de Paggi, 1978); Middle Paraná (José de Paggi, 1981).

Habitat: Rivers, pools, littoral and limnetic zones of lakes.

Comments: The record from Segredo Reservoir, Iguaçu basin, is the southernmost occurrence of this species in South America. See Reid (1990) for ecological requirements.

Genus "*Diaptomus*" (*sensu lato*) Westwood, 1836

Before they were begun to be split into several genera, all the Diaptomidae described from South America were assigned to the genus *Diaptomus* Westwood, 1836. Kiefer (1978) defined the subgenus *Diaptomus sensu stricto*, of which the type species is *Diaptomus castor* (Jurine, 1820). In 1932, Kiefer had defined *Diaptomus* "*sensu restricto*." Andrade & Brandorff (1975) stated that several species from South America had been described as *Diaptomus*, but did not belong to the same genus defined by Kiefer (1932) as *Diaptomus sensu restricto*. They suggested that all species already described as *Diaptomus* should be written as "*Diaptomus*" until they could be assigned to the correct genus, as had been done by Kiefer (1936a).

Kiefer's attempt at revision (1936a) included only part of the known species of *Diaptomus*.

Subsequently other new genera were created, and some of the species remaining in *Diaptomus* were transferred to them. Also new species were described and assigned to known or new genera. Nowadays there are still a few remnant species in the genus "*Diaptomus*" *sensu lato*, because no one knows where these species should be included and because most of the present genera are poorly defined. These remnant species are listed below.

"Diaptomus" azureus Reid, 1985
(Fig. 5)

"Diaptomus" azureus Reid & Esteves, 1984: 310, 311, 317, tab. 2; Reid, 1985: 574, 579-587, figs. 29-59; 1987: 378; Santos-Silva, 1998: 204; Kozlowsky-Suzuki *et al.*, 1998: 1487-1490.

Diaptomus azureus; Sendacz, 1993: 35; Rocha *et al.*, 1995: 157.

Distribution. **BRASIL**. **Rio de Janeiro**: Lagoa Comprida, District of Macaé, 21°17'S, 41°39'W (Reid & Esteves, 1984; Reid, 1985; Kozlowsky-Suzuki *et al.*, 1998); Lagoa Cabiúnas, District of Macaé (Kozlowsky-Suzuki *et al.*, 1998).

Habitat: Coastal lagoons.

"Diaptomus" fluminensis Reid, 1985
(Fig. 5)

"Diaptomus" fluminensis Reid & Esteves, 1984: 310, 311, 317, tab. 2; Reid, 1985: 574, 587-589, figs. 60-82; Reid, 1987: 378; Santos-Silva, 1998: 204.

Diaptomus fluminensis; Sendacz, 1993: 35; Rocha *et al.*, 1995: 157.

Distribution. **BRASIL**. **Rio de Janeiro**: Lagoa Iodada, 22°27'S, 41°51'W (Reid & Esteves, 1984; Reid, 1985).

Habitat: Coastal lagoons.

“Diaptomus” linus Brandorff, 1973
(Fig. 5)

“Diaptomus” linus Brandorff, 1972: 4, 32, 50, figs. 49-58; 1973b: 206, 208, pl. 3, figs. 1-6, pl. 4, figs. 1-6; 1976: 618, fig. 3; Andrade & Brandorff, 1975: 97, 103; Löffler, 1981: 15; Dussart & Defaye, 1983: 65; Hardy *et al.*, 1984: 529; Robertson & Hardy, 1984: tab. 3b; Arcifa, 1984: 143, tab. 7; Magalhães *et al.*, 1988: 270; Santos-Silva, 1998: 204.

Diaptomus linus; Rocha *et al.*, 1995: 154, 157.

Distribution. BRASIL. **Amazonas**: Lago do Castanho, a várzea lake on the right bank of the Rio Solimões (Brandorff, 1973b; Hardy *et al.*, 1984); Lago do Janauari (Brandorff, 1973b).

Habitat: Floodplain lakes.

“Diaptomus” negrensis Andrade & Brandorff, 1975
(Fig. 5)

“Diaptomus” negrensis Andrade & Brandorff, 1975: figs. 1-3; 1976: 618; fig. 3; Löffler, 1981: 15; Brandorff *et al.*, 1982: 109, 112; Dussart & Defaye, 1983: 65; Hardy *et al.*, 1984: 530; Dussart, 1984a: 34, 35, 36, 39, 55, 56, fig. 11; Robertson & Hardy, 1984: 347, tab. 3; Arcifa, 1984: 143, tab. 7; Magalhães *et al.*, 1988: 270; Santos-Silva, 1998: 205.

“Diaptomus” cf. *negrensis*; Bozelli, 1992: 257.

Diaptomus negrensis; Twombly & Lewis, 1987; Twombly, 1994: 236-245, figs. 2, 3, 5, 6; Rocha *et al.*, 1995: 154, 157.

Distribution. BRASIL. **Amazonas**: Rio Cuieiras; Lago Mucura; Lago Tarumã; Lago Baixote; Lago Jaraqui; Lago Arara; Lago Estreito; Lago Cobra; Lago Tupé;

Lago Tarumã-Mirim; Lago Tarumã-Açu (Andrade & Brandorff, 1975); flooded meadow of the Rio Nhamundá (Brandorff *et al.*, 1982). **Pará**: (Brandorff, 1976); Lago Batata, Rio Trombetas, 01°30'S, 56°20'W (Robertson in Bozelli, 1992). VENEZUELA. **Anzoátegui**: Rio Orinoco, left side, at Soledad (Dussart, 1984a); Laguna Orsinera, floodplain north of the Orinoco River, 08°10'N, 63°30'W (Twombly & Lewis Jr., 1987; Twombly, 1994). **Bolívar**: Río Orinoco, right side, at Ciudad Bolívar (Dussart, 1984a). **Delta Amacuro**: Caño Guara, near Tucupita (Orinoco Delta) (Dussart, 1984a). **Monagas**: Río Orinoco at Barrancas (Dussart, 1984a).

Habitat: Floodplain lakes, blackwater lakes.

“Diaptomus” ohlei Brandorff, 1978
(Fig. 5)

“Diaptomus” ohlei Brandorff, 1978a: 295-299, figs. 1-12; Dussart & Defaye, 1983: 65; Dussart, 1984b: 264, fig. 8; Hardy *et al.*, 1984: 530; Robertson & Hardy, 1984: tab. 3; Arcifa, 1984: 143, tab. 7; Magalhães *et al.*, 1988: 270; Santos-Silva, 1991: 33, 35, fig. 14; 1998: 205.

Notodiaptomus (Amazonius) ohlei n. comb., Dussart, 1985a: 214.

Distribution. BRASIL. **Amazonas**: mouth of Rio Manacapuru; Rio Pissia, near Lábrea; Lago Castanho (Brandorff, 1978a). **Pará**: Lago Salgado, Cabeceira do Boi; Lago Grande Curuay, in front of Caraubal (Brandorff, 1978a).

Comments: this species seems to be restricted to lakes influenced by white-water. Dussart & Defaye (1983) commented that it is related to *Notodiaptomus gibber*. In 1985a, when he proposed subgenera for *Notodiaptomus*, Dussart allocated this species to the subgenus *Amazonius*. No justification or diagnosis for that subgenus was provided.

“*Diaptomus*” *silvaticus* Wright, 1927
(Fig. 5)

Diaptomus silvaticus Wright, 1927: 75, 93-94, 100, 102, pl. 7, figs. 7-9, pl. 8, figs. 1-2; 1938b: 562; Kiefer, 1936b: 310; Thomasson, 1955: 214; Brehm, 1958c: 576; Brandorff, 1972: 52; Reid, 1991: 737; Rocha *et al.*, 1995: 154, 157.

“*Diaptomus*” *silvaticus*; Andrade & Brandorff, 1975: 97, 103; Brandorff, 1976: 618, fig. 3; Löffler, 1981: 15; Dussart & Defaye, 1983: 63; Dussart & Robertson, 1984: 390, 391; Robertson & Hardy, 1984: tab. 3; Dussart, 1985a: 214; Reid, 1991: 737; Santos-Silva, 1998: 205.

Distribution. BRASIL. **Amazonas**: (Brandorff, 1976). **Pará** (Wright, 1927). TRINIDAD. Sarge Grande (Wright, 1927).

Habitat: Pools.

Comments: Dussart (1985a) suggested the possibility of including this species in a group within the genus *Notodiaptomus* (*sensu lato*), which according to Dussart contained: *N. gibber*, *N. inflatus*, *N. anceps*, *N. lobifer*, *N. kieferi*, *N. orellanai*, *N. dilatatus*, and *N. paraensis*.

“*Diaptomus*” *silvaticus infrequens* (Wright, 1927)
(Fig. 5)

Diaptomus silvaticus infrequens Wright, 1927: 75, 95, 100, 102, pl. 7, figs. 3-4; Reid, 1991: 737, 738.

Diaptomus infrequens; Wright, 1938b: 562.

“*Diaptomus*” *silvaticus infrequens*; Dussart & Defaye, 1983: 63; Reid, 1991: 737, 738; Santos-Silva, 1998: 205.

Distribution. BRASIL. **Pará** (Wright, 1927).

Habitat: Pools.

Comments: This species sometimes found with “*Diaptomus*” *silvaticus*, but is neither as abundant nor as widely distributed.

Genus *Idiodiaptomus* (Kiefer, 1936)

This genus was created by Kiefer (1936a) to accommodate *Diaptomus gracilipes*, described by Douwe (1911). This was the first and last record of this species.

Idiodiaptomus gracilipes (Douwe, 1911)
(Fig. 2)

Diaptomus gracilipes Douwe, 1911: 162, figs. 1-2; 1912: 310, figs. 1-5; Wright, 1927: 73, 75, 99, 100, 102, pl. 9, figs. 8-9; 1937a: 66; 1938b: 562; Pesta, 1927: 80.

Idiodiaptomus gracilipes n. comb., Kiefer, 1936a: 199; Brehm, 1958a: 165; Brandorff, 1972: 43; 1976: 614, fig. 1; Löffler, 1981: 15; Dussart & Defaye, 1983: 140; 1995: 178, fig. L70; Santos-Silva, 1998: 205.

Distribution. BRASIL. **São Paulo**: Itapura (Douwe, 1911).

Comments: Wright (1927) commented: “The unusual character of the fifth feet is probably accentuated by being drawn at an angle.” Kiefer (1936a) also noticed this, but said that is better to believe in Douwe’s expertise as copepodologist and accept his drawings as correct until the contrary is proved. It is striking that no one has found this species since its description by Douwe (1911). The village of Itapura, the type locality, is located in the state of São Paulo, at the confluence of the Tietê and Paraná rivers. Sendacz (1997), working in the Upper Paraná River downstream from Itapura, did not find this species. The species might be considered extinct, following the IUCN index, which considers as extinct a species not observed in

the field in the past 50 years, or alternatively agree with Wright (1927) and accept that the drawing of the male fifth leg was based on a very contorted preparation. It seems that the second exopod segment of male right fifth leg is twisted and in lateral view.

Genus *Notodiaptomus* Kiefer, 1936

The genus *Notodiaptomus* Kiefer, 1936 is the most widely distributed and most species-rich genus of freshwater calanoids in the Neotropics. Dussart & Defaye (1983) listed 28 species in this genus; the number of nominal species is presently about 39, 24 of these occurring in Brasil.

Notodiaptomus was established to accommodate 11 species originally placed in *Diaptomus* Westwood, 1836 (*sensu lato*). Five of these, *D. nordestinus* Wright, 1935, *D. henseni* Dahl, 1894, *D. iheringi* Wright, 1935, *D. deitersi* Poppe, 1891, and *D. amazonicus* Wright, 1935 had previously been considered part of the *nordestinus*-group created by Wright (1935); the other 6 added by Kiefer (1936a) were *D. cearensis* Wright, 1936, *D. santaremensis* Wright, 1927, *D. carteri* Lowndes, 1934, *D. anisitsi* Daday, 1905, *D. incompositus* Brian, 1925, and *D. inflatus* (Kiefer, 1933). Kiefer did not provide a formal diagnosis for the new genus, but grouped these species based on a combination of characteristics (see Kiefer, 1936a).

Wright (1927) commented in regard to the formal division of *Diaptomus* species in South America: "It seems inadvisable, at this time, to make a formal division of the South American species into groups. Some of the forms are closely related but others are so distinct that they would have to be the sole representatives of their groups." However, he had previously identified groups of closely related species. In 1935, Wright described new species of *Diaptomus*, and defined and named as "*nordestinus*," that group of similar species (*D. nordestinus*, *D. henseni*, *D. iheringi*, and *D. deitersi*). Later (1937a), he added new

species to this group, which then contained the previously described *D. nordestinus*, *D. amazonicus*, *D. iheringi*, *D. jatobensis*, *D. deitersi*, *D. inflatus*, *D. conifer*, *D. henseni*, and the additional members *D. dahli*, *D. cearensis*, and *D. isabelae*. Wright (1937a) commented on the species included in Kiefer's proposal: "Kiefer (1936a) proposed the new genus *Notodiaptomus* to include the members of this group (*nordestinus*) and added the following species: *D. incompositus* Brian (1926), *D. anisitsi* Daday (1905), *D. santaremensis* Wright (1927), and *D. carteri* Lowndes (1934). On the basis of the first examination of the first two, the writer agrees on their eligibility, but reserves judgement on the last two." As a result, Wright's "*nordestinus*" group then included 13 species. Wright never accepted Kiefer's proposal (1936a) to split part of the genus *Diaptomus* into six genera, and wrote (1937a): "In a recent paper, Kiefer (1936a) proposed 7 [in reality only 6, *Argyrodiaptomus* having already been created by Brehm (1933a)] new genera to include about one-half of the known species of *Diaptomus* from South America. The writer is opposed to this policy at the present time because of the inadequate data available. In the past decade, the number of known species has increased greatly, and there is good reason to believe that many species remain undiscovered. Moreover, our information regarding numerous species is incomplete and of doubtful accuracy. This objection may be of little practical importance, because the groupings proposed by Kiefer seem to be valid and most of them had already been recognized by others. Of major importance is the fact that Kiefer has failed to define the new genera. It would seem unwise to accept them until they have been provided with proper diagnoses." This attitude caused additional problems, as will be seen below.

Wright (1937a) consulting the Zoological Record through 1934, verified that for South American *Diaptomus* "from 1889 to 1914, 13 valid species were described; from 1915 to 1925 no new ones were added; but since 1925 no less than 34 new and apparently valid species have been reported, giving a total of 47

for the continent". He commented about this new situation: "Many years ago, when few species were known, some of them with bizarre structures, identification usually could be made from descriptions and illustrations lacking details. At present, with numerous species of close affinities, there is greater need for thoroughness and precision in description of new species. Moreover, if we are to gain knowledge of relationships and centers of dispersal, there is need for review of many of the known species. Re-examination of almost all of the South American species described to the present should yield results of value." These observations continue valid to the present day.

Since Wright's count (1937a), several new species were described and assigned to *Notodiptomus*, and some known species assigned to *Diaptomus* were transferred into it. Some of them were added to *Notodiptomus* without any basis or reason given, transforming it into an increasingly heterogeneous group. Probably this situation and the need for revision and clear definition of this genus motivated Dussart's (1985a) proposal. However when he proposed the four new subgenera, he apparently added more confusion to an already confused situation. His proposal, lacking details, clear definitions, and diagnoses of the subgenera caused some reactions. Reid's (1987) reaction was: "Dussart (1985) recently proposed four subgenera within the admittedly vaguely defined genus *Notodiptomus*, but only for the proposed subgenus *Notodiptomus sensu stricto* did he supply a diagnosis. No diagnoses were provided for the proposed subgenera *Wrightius*, *Caleodiptomus*, and *Amazonius*, although type species were named. These latter three subgeneric names are not available under Article 13a of the International Code of Zoological Nomenclature (ICZN, 1985), and they cannot be recognized as valid taxa until such time as they are sufficiently described and differentiated." Regarding the diagnosis of the subgenus *Notodiptomus* Reid (1987) mentioned: "The entire diagnosis of the subgenus is: with exopod article 2 of the left leg 5 of male 'à soie spiniforme

droite ou à peine courbée, dressée et court'. Unfortunately, this does not constitute a differential diagnosis, which allows us to separate this group from the other species of the genus." One approach to this problem of diagnosis could be to reinstate Wright's original concept and definition of the "*nordestinus*" group (1935, 1937a), and to clearly redefine the genus based on the type and the other species included.

Santos-Silva *et al.* (1999) mentioned that Kiefer did not designate a type species for the genus *Notodiptomus*. In the absence of an original designation, there has been some confusion about the type of the genus. Ringuelet (1958a) formally designated *Diaptomus deitersi* Poppe, 1891 as the "genotype" of the genus *Notodiptomus*. Under the International Code of Zoological Nomenclature this subsequent designation is valid. Then, Dussart & Defaye (1983) proposed that "par souci de priorité, c'est *N. gibber* (Poppe, 1889) qui pourrait être prise comme espèce-type." But *Diaptomus gibber* was only transferred to *Notodiptomus* by Pallares in 1963, several years after the creation of the genus, and was not originally included in *Notodiptomus* by Kiefer (1936a). Consequently, following Article 67(g) of the Code, it cannot be accepted as the type of the genus. Therefore the designation by Ringuelet (1958a) of *Diaptomus deitersi* as type species of the genus *Notodiptomus* is valid. Santos-Silva *et al.* (1999) provided a redescription of the type species *Notodiptomus deitersi* (Poppe, 1891) and used it as a basis for a complete diagnosis of the genus.

Only the 24 species occurring in Brasil are presented herein, with literature, distribution and comments when necessary.

Notodiptomus amazonicus (Wright, 1935)
(Fig. 6)

Diaptomus henseni; Wright, 1927 (nec *D. henseni* Dahl): 73, 75, 96, 100, 102, pl. 8, figs. 7-11.
Diaptomus amazonicus Wright, 1935: 214, 219, 220,

221, 222, 225, 228, pl. 1, figs. 2, 5, 9, 14, 16; 1936: 80; 1937a: 73, 76; 1938b: 562; Brehm, 1960: 50; Reid, 1991: 737, 738, 740.

Notodiaptomus amazonicus n. comb., Kiefer, 1936a: 197, fig. 6; 1956: 242; Brehm, 1958a: 168; Löffler, 1963: 208; Ringuelet & Martínez de Ferrato, 1967: 411, 414, pl. 1, figs. 7-11; Brandorff, 1972: 4, 5, 10, 18, 25, 38, 43, figs. 29-32; 1973b: 205, 206; 1976: 614, 616, fig. 2; Andrade & Brandorff, 1975: 97; Hardy, 1980: 594, 596, 603, 604; Löffler, 1981: 15; Carvalho, 1983: 717; Dussart & Defaye, 1983: 136; Dussart, 1984a: 34, 35, 39, 48, 51, 53, fig. 5A; Robertson & Hardy, 1984: 347, tab. 3; Arcifa, 1984: 143, tab. 7; Dussart & Frutos, 1986: 307; Matsumura-Tundisi, 1986: 537, 547, figs. 22-25, 100; Montú & Gloeden, 1986: 6, 83, fig. 25k-m; Cicchino *et al.*, 1989: 101; Santos-Silva *et al.*, 1989: 726, 727, figs. 47-68; Reid & Moreno, 1990: 731; Reid, 1991: 737, 738, 740; Santos-Silva, 1991: 33, 34, fig. 10; 1998: 206; Sendacz & Melo Costa, 1991: 468; Bozelli, 1992: 254, tab. 6; Santos-Silva & Robertson, 1993: 101; Sendacz, 1993: 35; Battistoni, 1995: 958; Rocha *et al.*, 1995: 156; Santos-Silva *et al.*, 1999: 127; Bohrer & Araújo, 1999: 92, 94; Garrido, 1999: 30, 32.

Notodiaptomus (Notodiaptomus) amazonicus; Dussart, 1985a: 208.

Notodiaptomus cf. *amazonicus*; Lima *et al.*, 1996: 114, 115, fig. 3; Lansac-Tôha *et al.*, 1997: 140, 141, tab. 3.

Distribution. **BRASIL. Amazonas:** Lago Janauary, Rio Negro, near Manaus (Brandorff, 1972; 1973b); Lago Catalão, Rio Amazonas/Rio Negro, near Manaus (Brandorff, 1972; 1973); Paraná do Curari, Rio Amazonas (Brandorff, 1972); Lago do Rei, Careiro Island, Rio Amazonas, near Manaus (Brandorff, 1972; Santos-Silva *et al.*, 1989); Lago and Paraná do Piranha, Rio Amazonas; Lago Mata Fome, Rio Madeira (Brandorff, 1972); lakes Castanho, Jacaretinga, and Redondo, Rio Amazonas (Hardy, 1980); Lago Grande, Rio Amazonas, 03°22'S, 60°35'W (Carvalho, 1983);

Lago Jacaretinga, Rio Amazonas (Matsumura-Tundisi, 1986); Lago Calado, Rio Amazonas (Santos-Silva *et al.*, 1989; Santos-Silva, 1991); Lago Amanã, Rio Japurá (Santos-Silva & Robertson, 1993); Balbina Reservoir, Rio Uatumã; Lake I, Ilha da Marchantaria, Rio Amazonas (present report); Lago Juruazinho, Mamirauá (present report). **Pará:** Tapajós River near Santarém; Lake Arary, Marajó Island; Rio Arama (Wright, 1927); Curuá-Una Reservoir, 02E°48'38"S, 54E°18'55"W (Santos-Silva *et al.*, 1989); Rio Trombetas; Lago Batata, Rio Trombetas, 01°30'S, 56°20'W; Lago Mussurá, Rio Trombetas, 01°15'S, 56°20'W (Bozelli, 1992). **Pernambuco:** BR-232, Km 131 (Brandorff, pers. com). **Mato Grosso do Sul:** Guaraná Lake and Baía River, floodplain lake and a tributary of the Paraná River (Lima *et al.*, 1996); Lake Pato, Baía River, Paraná and Cortado (Lansac-Tôha *et al.*, 1997). **Rio Grande do Sul:** Lagoa dos Patos (Montú & Gloeden, 1986; Bohrer & Araújo, 1999). **VENEZUELA. Monagas:** Río Orinoco at Barrancas (Dussart, 1984a). **Bolívar:** Río Orinoco, right side, at Ciudad Bolívar (Dussart, 1984a). **GUIANA.** Essequibo River and associated waters; Georgetown (Wright, 1927). **PERU:** (Löffler, 1963). **ARGENTINA. Santa Fé:** Madrejón Don Felipe, Colastiné and Ubajay stream, Rincón (Ringuelet & Martínez de Ferrato, 1967). **Corrientes:** Puerto Valle, Yacyretá Reservoir (27°28'S and 56°44'W), Upper Paraná (Garrido, 1999).

Habitat: Natural lakes, reservoirs.

Notodiaptomus anisitsi (Daday, 1905)

(Fig. 6)

Diaptomus anisitsi Daday, 1905: 149, 151, 152, pl. 9, figs. 16-22; Tollinger, 1911: 65, 270, 271, fig. Y; Pesta, 1927: 80; Wright, 1927: 73, 74, 77, 100, 102, pl. 1, figs. 4-6; 1937a: 76; 1938b: 562; 1939: 647; Kiefer, 1928b: 172, figs. 2a-b; Brehm, 1935a: 12, 13; 1935b: 308; Forró, 1986: 560, tab. 1.

Diaptomus "anisitsi"; Kiefer, 1928b: 172.

Diaptomus inflexus Brian, 1926: 180, figs. 4-6; Kiefer, 1928b: 170, 172; Brehm, 1958a: 166; 1965: 3, 7; Reid, 1991: 738.

Notodiaptomus anisitsi n. comb., Kiefer, 1936a: 197; 1956: 242; Brehm, 1939: 42, figs. 2-3; 1958c: 575, 576, 578, 579; Ringuelet, 1958a: 45, 50; 1958b: 18; 1962: 87; Pesta, 1959: 148; Ringuelet & Martínez de Ferrato, 1967: 411, 416, 417, pl. 2, figs. 7-10; Brandorff, 1972: 43; 1976: 614, 616, 622, fig. 2; Paggi, 1976b: 85; Löffler, 1981: 15; Dussart & Defaye, 1983: 133, 135, 138; Dussart & Frutos, 1986: 306; Matsumura-Tundisi, 1986: 547, fig. 100; Reid, 1987: 377, tab. 1; Paggi & José de Paggi, 1990: 690, tab. 2; Reid, 1991: 738; Sendacz, 1993: 35; Battistoni, 1995: 958; Rocha *et al.*, 1995: 156; Lopes *et al.*, 1997: 45, 46, tab. 1c; Santos-Silva, 1998: 206; Santos-Silva *et al.*, 1999: 127.

Notodiaptomus anitsisi; José de Paggi, 1978: 150, 159, tab. 1. [error]

Notodiaptomus anitsissi; José de Paggi, 1981: 199. [error]

Notodiaptomus inflexus; Brehm, 1938: 29.

“*Diaptomus*” *bidigitatus* Brehm, 1965: 3; Brandorff, 1976: 618, fig. 3; José de Paggi, 1978: 150, 151; 1984: 141; 1985: 17.

Notodiaptomus bidigitatus; Dussart & Defaye, 1983: 138.

Notodiaptomus anitsi Rocha *et al.*, 1995: 155. [error]

Notodiaptomus (Notodiaptomus) anisitsi; Dussart, 1985a: 201, 208.

Distribution. BRASIL. **Paraná**: Segredo Reservoir, Rio Iguaçu (Lopes *et al.*, 1997); Salto Santiago Reservoir, Rio Iguaçu (present report). **Rio Grande do Sul**: (Brandorff, 1976). PARAGUAY. Caerapa, swamp and Villa Rica, wet field (Daday, 1905). ARGENTINA. Middle Paraná River (Paggi & José de Paggi, 1990); main course of the Paraná River between Santa Fe and Buenos Aires (José de Paggi, 1978); Middle Paraná (José de Paggi, 1981). **Buenos Aires**: stream, Pergamino (Ringuelet, 1958a); Hoya del Plata (Ringuelet, 1962). **Capital Federal**: artificial lake near

Buenos Aires Cricket Club, and Lago de la Administración at Parque 3 de Febrero, both localities in Palermo (Wright, 1939). **Chaco**: pond at Makallé (Ringuelet, 1958a). **Entre Ríos**: Concordia and Colón, Río Uruguay (Brian, 1926). **Formosa**: Laguna Yema (Brehm, 1958a, 1965). **Santa Fé**: ponds at Crespo, Calchaquí, and Guadalupe (Ringuelet, 1958a); Calchaquí (Brehm, 1958a, 1965); Ubajay stream, La Capital (Ringuelet & Martínez de Ferrato, 1967). URUGUAY. **Salto**: Salto, Río Uruguay (Brian, 1926). Mouth of the Río de La Plata, perhaps at Montevideo (Brian, 1938, 1939).

Habitat: Pools, small lakes, flooded lands.

Comments: Dr. Juan Paggi (pers. com.) is redescribing this species. The records from the Rio Iguaçu basin in the Segredo and Salto Santiago reservoirs, in the State of Paraná, are the northernmost occurrences of this species in Brasil.

Notodiaptomus brandorffi Reid, 1987 (Fig. 7)

Notodiaptomus brandorffi Reid, 1987: 364, 372, 377, figs. 32-59; Reid & Turner, 1988: 489, 492; Sendacz, 1993: 35; Rocha *et al.*, 1995: 156; Santos-Silva, 1998: 206.

Distribution. BRASIL. **Maranhão**: Lago Açu, Rio Mearim, 03°50'S, 44°55'W and estuary of the Rio Coqueiro (Reid, 1987; Reid & Turner, 1988). **Sergipe**: Betume, near Neápolis, in the Rio São Francisco basin, 10°19'S, 36°35'W (Reid, 1987).

Habitat: Shallow lakes, river.

Notodiaptomus carteri (Lowndes, 1934) (Fig. 7)

Diaptomus carteri Lowndes, 1934: 89, 90, 91, 92, 93, 98-100, pl. 3, fig. 3a-d; Wright, 1937a: 76; 1938a: 562.

Notodiaptomus carteri n. comb., Kiefer, 1936a: 197; 1956: 242; Ringuelet & Martínez de Ferrato, 1967: 411, 412, pl. 1, figs. 1-6; Brandorff, 1972: 43; 1976: 614, 616, fig. 2; Bowman, 1973: 199; Löffler, 1981: 15; Dussart & Defaye, 1983: 133, 136; Dussart, 1985b: 264, fig. 7C; Dussart & Frutos, 1986: 306; 1987: 244, 245, 246, pl. 1, figs. 2-9; Montú & Gloeden, 1986: 6, 82, fig. 25e-j; Reid, 1987: 377; Battistoni, 1995: 958; Rocha *et al.*, 1995: 156; Santos-Silva, 1998: 206; Santos-Silva *et al.*, 1999: 127; Bohrer & Araújo, 1999: 92, 94.

Notodiaptomus (Notodiaptomus) carteri; Dussart, 1985a: 208.

Distribution. BRASIL. **Rio Grande do Sul**: Canal de São Gonçalo (Montú & Gloeden, 1986); Lagoa dos Patos (Bohrer & Araújo, 1999). PARAGUAY. Makthlawaiya, 23°25'S, 58°19'W (Lowndes, 1934). ARGENTINA. **Chaco**: Estero Marochó and Estero Pati (Dussart & Frutos, 1986). **Chaco**: Canguí Chico stream; Río de Oro; Río Gayacuru; Río Tragadero; Río Palometa (Dussart & Frutos, 1986). **Santa Fé**: along highway N° 168, from Santa Fé to Helvecia; Laguna Los Espejos, at Sirgadero Island, in front of the city of Santa Fé; Madrejón Don Felipe, Colastiné (Ringuelet & Martínez de Ferrato, 1967).

Habitat: Swamps, shallow lakes with aquatic plants, flooded lands.

Notodiaptomus cearensis (Wright, 1936)
(Fig. 6)

Diaptomus cearensis Wright, 1936a: 80, pl. 1, fig. 2; 1937a: 73, 76; 1938a: 300; 1938b: 563; Reid, 1991: 740.

Notodiaptomus cearensis n. comb., Kiefer, 1936a: 197; 1956: 242; Brandorff, 1972: 44; 1976: 615, 616, fig.

2; Bowman, 1973: 193, 194, figs. 1-21, 33-35; Löffler, 1981: 15; Dussart & Defaye, 1983: 137; 1995: fig. L62; Dussart, 1984a: 26, 27, 28, 34, 35, 36, 38, 39, 49, fig. 6; Reid, 1985: 589, 590; Matsumura-Tundisi, 1986: 542, 547, figs. 61-66, 100; Cicchino *et al.*, 1989: 101; Reid, 1991: 740; Cicchino, 1994: 145, fig. 9; Tundisi & Matsumura-Tundisi, 1994: 27; Rocha *et al.*, 1995: 156; 1998: 794, 795, tab. 1; Santos-Silva, 1998: 207; Santos-Silva *et al.*, 1999: 127; Sendacz & Kubo, 1999: 526.

Notodiaptomus (Notodiaptomus) cearensis; Dussart, 1985a: 208.

Distribution. BRASIL. **Maranhão**: sand dune lakes, Parque dos Lençóis Maranhenses (Rocha *et al.*, 1998). **Ceará**: Lagoa Tauapé, Fortaleza and Lagoa Mecejana, Mecejana (Wright, 1936a); “açude” (artificial pond) in Fortaleza (Matsumura-Tundisi, 1986). **Rio Grande do Norte**: several waters near Caraúbas and one near Assú (Wright, 1936a). **Paraíba**: Açude Pilões, near São João do Rio do Peixe (Wright, 1936a). **Pernambuco**: “açudes” (Matsumura-Tundisi, 1986). **São Paulo**: Barra Bonita Reservoir, Rio Tietê (Tundisi & Matsumura-Tundisi, 1994). VENEZUELA. **Anzoátegui**: Río Orinoco, left side at Soledad; Charca 2, near Unaré River, at Clarines (Dussart, 1984a). **Aragua**: Man-made lake at Camatagua (Dussart, 1984a). **Bolívar**: Guri, man-made lake near the dam on Caroní River (Dussart, 1984a). **Delta Amacuro**: Caño Manamo near Tucupita. **Guarico**: Guarico Reservoir, near Calobozo; Caño Falcon, Río Portuguesa, near San Fernando de Apure; pond (natural) los Patos, near field biological station of Calobozo; pond (natural) near El Sombrero (Dussart, 1984a). **Monagas**: Pond between Barcelona and Maturín, near Urica; vicinity of Barrancas (Bowman, 1973); Río Orinoco at Barrancas (Dussart, 1984a).

Habitat: Man-made lakes, shallow gully, and sand dune lakes.

Notodiaptomus conifer (Sars, 1901)

(Fig. 6)

Diaptomus conifer Sars, 1901: 13, pl. 3, figs. 1-8; Daday, 1905: 147, 151, 152, pl. 9, fig. 10; Tollinger, 1911: 68, 270, 271, fig. D; Pearse, 1921: 459; Kiefer, 1926: 24; 1936b: 310; Pesta, 1927: 76, 80; Wright, 1927: 73, 75, 91, 100, 102, pl. 6, figs. 10-12; 1936: 79; 1937a: 66, 73, 75, 76, pl. 3, figs. 1-4; 1938a: 302; 1938b: 562; Lowndes, 1934: 89, 91, 92, 93, 96, 98, 101; Brehm, 1935b: 308; 1955: 413; 1958a: 143, 167; 1965: 3, 5, 7, 8; Brandorff, 1972: 47; Bowman, 1973: 201; Infante *et al.*, 1979: 225, 230; Forró, 1986: 560, tab. 1.

Notodiaptomus conifer n. comb., Kiefer, 1954: 173; 1956: 239, 242; Ringuelet, 1958a: 45, 46, 51; Paggi & José de Paggi, 1974: tab. 1; Brandorff, 1976: 615, 616, fig. 2; Gouvêa, 1980: 1047, 1048, 1050, 1051, 1058, 1059; Löffler, 1981: 15; Sendacz & Kubo, 1982: 54, 55, 66, 71, figs. 20-24, tab. 3; Dussart, 1983: 321; 1984b: 264, fig. 7B; Dussart & Defaye, 1983: 134; Arcifa, 1984: 143, tab. 7; Dussart & Frutos, 1986: 306, 307; 1987: 246; Sendacz *et al.*, 1985: 190, 193, 196, 199, 203, 207, tabs. 4, 8, 12; Matsumura-Tundisi, 1986: 542, figs. 46-50, 100; Reid, 1987: 372; Defaye & Dussart, 1989: 123; Cicchino *et al.*, 1989: 98; Paggi & José de Paggi, 1990: 690, tab. 2; Sendacz, 1993: 35; 1997: 624, 625, tab. 2; Battistoni, 1995: 958; Rocha *et al.*, 1995: 155, 156; Jersabek *et al.*, 1996: 2028, 2030, 2059; Santos-Silva, 1998: 207; Henry & Nogueira, 1999: 668, tab. 4.

Notodiaptomus conifera; Henry & Nogueira, 1999: 667. [error]

Notodiaptomus (Notodiaptomus) conifer; Dussart, 1985a: 208.

Distribution. BRASIL. **Bahia**: Lagoa do Abaeté, 12°55'S, 38°22'W (Gouvêa, 1980). **Mato Grosso**: Corumbá (Daday, 1905). **São Paulo**: dried mud from Itatiba (Sars, 1901); reservoir at Sorocaba and pool in a brick-yard, near Amparo (Wright, 1937a); Batista Reservoir, Rio Paranapanema and Itupararanga

Reservoir, Rio Tietê (Sendacz & Kubo, 1982; Sendacz *et al.*, 1985); Xavantes Reservoir (Matsumura-Tundisi, 1986); Upper Paraná River (Sendacz, 1997); Jurumirim Reservoir (between 23°08'/23°35'S, and 48°30'/49°13'W), Paranapanema River basin (Henry & Nogueira, 1999). FRENCH GUIANA: (Defaye & Dussart, 1989). PARAGUAY. Aregua, flood from a stream crossing the road to Laguna Ipacarai; pool at the railway; flooded area between Aregua and Yuguari; pools at Assunção; Campo Grande; Calle de la Cañada; pools on an island in the Río Paraguay; Gran Chaco, Río Paraguay; Laguna (Pasito); Cerro Leon, Bañado; Curuzu-ñu, small lake near Marcos Romeros' house; Estia Postillon, Laguna; Courallhes, permanent pond; Laguna Ipacarai, surface; Lugua, pool in the train station; Pirayu, pool in the street and pond adjacent to pottery; Sapucay, rain-water pools; Tebicuary, permanent swamp; flooded area, Río Yuguari (Daday, 1905); Makthlawaiya, a rain-water pool in grassland, 23°25'S, 58°19'W; pool in a wood 5 miles NE. of Nanahua (Lowndes, 1934). ARGENTINA. Middle Paraná River between the cities of Santa Fé and Paraná (Paggi & José de Paggi, 1974); Middle Paraná River (Paggi & José de Paggi, 1990). **Buenos Aires**: Laguna Totorá, Laprida; Laguna Videl, Chascomus and Tapalque (Brehm, 1965). **Cordoba**: Unguillo (Brehm, 1965). **Chaco**: Resistencia; pond in Makallé (Ringuelet, 1958a); Corzuela (Brehm, 1965). **La Plata**: La Plata (Brehm, 1965). **Mendoza**: La Dormids (Brehm, 1965).

Habitat: Pools, ponds, shallow turbid lakes.

Comments: the record of this species occurring in Lake Valencia, Venezuela, by Pearse (1921) was a misidentification; later Kiefer (1954, 1956) verified that this species does not occur there. Only *Notodiaptomus venezolanus* Kiefer, 1954 occurs in Lake Valencia.

Notodiaptomus coniferoides (Wright, 1927)

(Fig. 7)

Diaptomus coniferoides Wright, 1927: 75, 92, 100, 102, pl. 7, figs. 1-4; 1937a: 77; 1938b: 562; 1939: 647; Lowndes, 1934: 89, 90, 91, 92, 93, 94-96, pl. 1, figs. 1a-d; Brehm, 1938: 29; 1957: 60, figs. 72-76; 1958a: 140, 141, 142, 143, 147, 167, pl. 2, figs. 1-4; 1960: 49; 1965: 3, 7, 8; Brandorff, 1972: 4, 5, 7, 8, 9, 24, 25, 48, figs. 27-28; Reid, 1991: 737, 738.

“*Diaptomus*” *coniferoides*; Brehm, 1958a: 147.

Notodiaptomus coniferoides n. comb., Ringuelet, 1958a: 45, 46, 52; 1962: 87; Herbst, 1967: 96; Cicchino, 1972: 585-596; Brandorff, 1973b: 206; 1976: 616, 622, fig. 2; 1978a: 298; Paggi & José de Paggi, 1974: 109, tab. 1; 1990: 685, 686, 690, 692, tab. 2; Andrade & Brandorff, 1975: 97; José de Paggi, 1978: 150, tab. 1; 1981: 189, 199; Gouvêa, 1980: 1047, 1050, 1051, 1058; Hardy, 1980: 594, 596, 604; Löffler, 1981: 15; Carvalho, 1983: 717; Dussart & Defaye, 1983: 135; Dussart, 1984a: 34, 35, 38, 39, 54, fig. 9; 1984b: 264, fig. 7A; Robertson & Hardy, 1984: 347, tab. 3; Arcifa, 1984: 143, tab. 7; Dussart & Frutos, 1986: 306, 307, figs. 14-18; 1987: 243, 244, 245, 246, pl. 2, figs. 10-12; Reid & Moreno, 1990: 726, 729, 730-733, tabs. 2, 3; Reid, 1991: 737, 738; Santos-Silva, 1991: 33, 34, fig. 11; 1998: 207; Sendacz & Melo Costa, 1991: 466, 468, 469; Frutos, 1993: 91, 112, tab. 3; Santos-Silva & Robertson, 1993: 101; Sendacz, 1993: 35; Battistoni, 1995: 958; Rocha *et al.*, 1995: 155, 156; Jersabek *et al.*, 1996: 2028, 2030.

Notodiaptomus coniferoide; Matsumura-Tundisi, 1986: 542, 547, figs. 51-54, 100. [error]

Notodiaptomus (*Caleodiaptomus*) *coniferoides*; Dussart, 1985a: 201, 214.

Distribution. BRASIL. **Amazonas**: Lago Joanico, Ilha do Careiro, near Manaus (Herbst, 1967); Lago Janauari, Rio Negro, near Manaus (Brandorff, 1972; 1973b); Paraná do Curari; Lago do Rei, Ilha do Careiro, Rio Amazonas; Rio Manacapuru, Lago do Piranha and Paraná do Piranha (Brandorff, 1972); Lago Calado, Rio Amazonas, near Manacapuru (Brandorff, 1972; Santos-Silva, 1991); Lago Jacaretinga, Rio Amazonas (Hardy,

1980); Lago Grande, Rio Amazonas, 03°22'S, 60°35'W (Carvalho, 1983); Lago Lua Nova, Rio Acre (Sendacz & Melo Costa, 1991); Lago Amanã, Rio Japurá (Santos-Silva & Robertson, 1993). **Pará**: vicinity of Santarém, probably in the Rio Tapajós (Wright, 1927); Lago Grande Curuai, in front of Fazenda Nova Itália (Brandorff, 1972; 1973b), and in front of Caraubal, Rio Amazonas; Rio Tapajós at Santarém; Lago Salgado, Cabeceira do Boi and Cabeceira do Molha; Lago Jurucui, Rio Tapajós, near the village of Alter-do-Chão; Rio Amazonas, near Santarém; Paraná do Tapará, near Santarém (Brandorff, 1972). **Rondônia**: Calama, Rio Madeira (Wright, 1927); Igarapé São Pedro, 09°36'S, 63°37'W (Santos-Silva & Robertson, 1993). **Mato Grosso do Sul**: southern Pantanal, region of Corumbá, Rio Paraguay: near Marinha Ladário, near Port, near Rabicho, site 2 near airport (Corumbá), Baía de Carandazal (baía 29) at Fazenda Nhumirim (18°59'S, 56°39'W), Baía de Jacadigo (19°01'S, 57°41'W) (Reid & Moreno, 1990). **Paraná**: Itaipu Reservoir (Matsumura-Tundisi, 1986). BOLIVIA. Beni (Brandorff, 1976). PARAGUAY. Several samples from Makthlawaiya, 23°25'S, 58°19'W and Nanahua, 32°30'S, 59°30'W, regions (Lowndes, 1934). ARGENTINA. Middle Paraná River between the cities of Santa Fé and Paraná (Paggi & José de Paggi, 1974); Middle Paraná River (José de Paggi, 1981; Paggi & José de Paggi, 1990); main course of the Paraná River between Santa Fe and Buenos Aires (José de Paggi, 1978). **Buenos Aires**: Delta of Río Paraná, near Tigre (Wright, 1939); Paraná Guazú, Tigre (Brehm, 1957, 1965); stream at Pergamino and canal of Río Santiago at Puerto La Plata (Ringuelet, 1958a); Hoya del Plata (Ringuelet, 1962); Río de la Plata at Punta Lara (Cicchino, 1972); Arroyo Pajarito, Tigre and Río Terito near Tigre (Reid, 1991). **Chaco**: Resistencia (Ringuelet, 1958a); Río Barranqueras (Brehm, 1965); Río Guaycurú; Río La Palometa (Dussart & Frutos, 1986). **Corrientes**: Laguna 1 (La Turbia), Isla del Cerrito, Río Paraná and Laguna 2 (Los Pajaros), Isla Nueva Cerrito, Río Paraná (Frutos, 1993). **Formosa**: Laguna Yema (Brehm, 1957, 1965); Ingeniero Juarez (Brehm, 1965); San Hilario stream

(Dussart & Frutos, 1987).

Habitat: Swamps, pools, shallow turbid lakes, floodplain lakes.

Comments: All records of *Notodiptomus coniferoides* for Venezuela (Dussart, 1984a) are misidentifications, referring to a new species being described by Cicchino *et al.* (in press). *Notodiptomus coniferoides* does not occur in Venezuela.

Notodiptomus dahli (Wright, 1936)

(Fig. 6)

Diaptomus dahli Wright, 1936a: 79, pl. 1, fig. 1; 1938b: 562; Brandorff, 1972: 48; Andrade & Brandorff, 1975: 97; Reid, 1991: 740.

Notodiptomus dahli n. comb., Kiefer, 1956: 242; Brandorff, 1976: 616, fig. 2; Löffler, 1981: 15; Dussart & Defaye, 1983: 137; Robertson & Hardy, 1984: tab. 3; Dussart & Frutos, 1987: 246; Reid, 1987: 377; 1991: 740; Rocha *et al.*, 1995: 156; Santos-Silva, 1998: 208.

Notodiptomus (Notodiptomus) dahli; Dussart, 1985a: 208.

Distribution. BRASIL. **Pará**: several localities in Rio Arari, Marajó Island (Wright, 1936a).

Habitat: Rivers.

Comments: Dussart & Defaye (1983) listed this species from Venezuela, but I cannot locate the source of their record. It is interesting that since it was described, no one has found this species again, probably because no surveys have been made in its area of occurrence. The identity of this species is not clearly defined, and the fact that Wright apparently did not deposit any type material makes clarification of its taxonomical status very difficult.

Notodiptomus deeveyorum Bowman, 1973

(Fig. 7)

Notodiptomus venezolanus deeveyorum Bowman, 1973: 199, figs. 22-30, 36-39; Löffler, 1981: 15; Dussart & Defaye, 1983: 138; Reid, 1985: 590; Matsumura-Tundisi, 1986: 542, figs. 43-45.

Notodiptomus deeveyorus, new rank, Dussart, 1984a: 25, 34, 35, 38, 39, 46, 48, 49, fig. 4; Dussart & Frutos, 1986: 308; Frutos, 1993: 112, tab. 3; Twombly, 1994: 244, 245. [error]

Notodiptomus (Notodiptomus) deeveyorum; Dussart, 1985a: 208.

Notodiptomus cf. deeveyorum; Dussart & Frutos, 1986: 307, 308, figs. 7-8.

Notodiptomus deeveyorum; Reid, 1987: 378; Defaye & Dussart, 1989: 110, 111, 113, 123, figs. 11-15; Cicchino *et al.*, 1989: 98, 103, 104; Battistoni, 1995: 958; Rocha *et al.*, 1995: 156; Santos-Silva, 1998: 208.

Distribution. BRASIL. **Mato Grosso**: Lakes Sá Mariana, Chacororé, and Buritizal, Pantanal (Matsumura-Tundisi, 1986). VENEZUELA. **Amazonas**: Río Atabapo (Dussart, 1984a). **Bolívar**: Guri, man-made lake near the dam on Caroni (Dussart, 1984a); Río Orinoco, right side, at Ciudad Bolívar (Dussart, 1984a). **Carabobo**: Lake Valencia (littoral, south shore) (Dussart, 1984a). **Delta Amacuro**: Cañamo Manamo near Tucupita (Dussart, 1984a). **Monagas**: vicinity of Barrancas, Río Orinoco (Bowman, 1973); Río Orinoco at Barrancas and lateral caño (pond) near Orinoco at Barrancas (Dussart, 1984a). FRENCH GUIANA. Pisciculture pond at Barjou, near Sinnamary; swamp at Rochambeau, near highway RN2 (Defaye & Dussart, 1989). ARGENTINA. **Corrientes**: Laguna 1 (La Turbia), Isla del Cerrito, Río Paraná and Laguna 2 (Los Pajaros), Isla Nueva Cerrito, Río Paraná (Frutos, 1993).

Habitat: Natural and man-made lakes, ponds, swamps and rivers.

Comments: Cicchino *et al.* (1989) considered this species as synonymous with *Notodiaptomus henseni*. I prefer to consider it a valid species until the type material of each species involved has been carefully examined. It is lamentable that those authors could not examine the type material of *Notodiaptomus henseni* (Dahl, 1894), which seems not to be extant. Dussart (1984a) raised the subspecies *Notodiaptomus venezolanus deeveyorum* described by Bowman (1973) to species rank, erroneously using the name *deeveyorum*.

Notodiaptomus deitersi (Poppe, 1891)
(Fig. 6)

Diaptomus deitersi Poppe, 1891: 248, figs. 1-3; De Guerne & Richard, 1892: 2, pl. 10-12; Richard, 1897a: 298; Giesbrecht & Schmeil, 1898: 81; Sars, 1901: 10, 12; Daday, 1905: 151, 152; Tollinger, 1911: 69, 270, 271, fig. E; Brian, 1926: 182, 183; Spandl, 1926: 104, figs. 7a-d; Pesta, 1927: 80; Wright, 1927: 73, 75, 95, 100, 102, pl. 8, figs. 5-6; 1935: 213, 219, 220; 1937a: 76; 1938b: 562; Lowndes, 1934: 89, 90, 91, 96-98, pl. 2; figs. 2a-b; Brehm, 1959: 511, 514, 515, 516, figs. 15-22; Dussart & Matsumura-Tundisi, 1986: 250.

Notodiaptomus deitersi n. comb., Kiefer, 1936a: 197; 1954: 173; 1956: 242; Brehm, 1955: 413, 414; 1958a: 168; 1959: 514, 515, 516, figs. 15-22; Ringuelet, 1958a: 50; Ringuelet & Martínez de Ferrato, 1967: 411, 417, pl. 2, figs. 11-14; Brandorff, 1972: 44; 1976: 616, fig. 2; Löffler, 1981: 15; Dussart & Defaye, 1983: 134; Dussart & Frutos, 1986: 306; Matsumura-Tundisi, 1986: 537, 100, figs. 26-33; Reid, 1987: 377; Sendacz, 1993: 35; Battistoni, 1995: 959; Rocha *et al.*, 1995: 155, 156; Lansac-Tôha *et al.*, 1997: 140, tab. 3; Santos-Silva, 1998: 208; Santos-Silva *et al.*, 1999: 114-128, figs. 1-8, tabs. 1-2.

Neodiaptomus deitersi; Brehm, 1959: 510, 511, 514, 515, 517, figs. 15-22.

Notodiaptomus (Notodiaptomus) deitersi; Dussart, 1985a: 208.

Distribution. BRASIL. **Piauí**: Lake Parnágua (Spandl, 1926). **Mato Grosso**: pool in the city of Cuiabá (Poppe, 1891); lakes Sá Mariana and Recreio (Matsumura-Tundisi, 1986); Lagoa Pedra Branca (Santos-Silva *et al.*, 1999). **Mato Grosso do Sul**: Lakes Guaraná and Pousada das Garças, and Paraná River (Lansac-Tôha *et al.*, 1997). PARAGUAY. Samples from Makthlawaiya, 23°25'S, 58°19'W and Nanahua, 32°30'S, 59°30'W, regions (Lowndes, 1934). ARGENTINA. **Corrientes**: Laguna Ibera; Mercedes (Brehm, 1959). **Misiones**: San Ignacio (Brehm, 1959). **Santa Fé**: lagunas Los Espejos and Madrejón Don Felipe (Ringuelet & Martínez de Ferrato, 1967).

Habitat: Pools, lakes, shallow lakes, littoral zones of lakes.

Comments: Ringuelet (1958a) proposed this species as the genotype of the genus *Notodiaptomus*, but without justifying his proposal. Santos-Silva *et al.* (1999) redescribed this species and made a neotype designation, to clarify its taxonomical status; and also expanded the genus diagnosis.

Notodiaptomus dubius Dussart & Matsumura-Tundisi (in Dussart, 1985a), 1985
(Fig. 7)

Notodiaptomus dubius Dussart & Matsumura-Tundisi, 1986: 250, fig. 2; Matsumura-Tundisi, 1986: 537, 552, figs. 16-21, 100; Reid, 1987: 378; Defaye & Dussart, 1989: 114; Sendacz, 1993: 35; Rocha *et al.*, 1995: 156, 159; Santos-Silva, 1998: 209.

Notodiaptomus (Wrightius) dubius; Dussart 1985a: 210, 212, 213, 214, fig. 8.

Distribution. BRASIL. **Minas Gerais**: Lagoa Amarela,

Rio Doce valley (Dussart, 1985a; Dussart & Matsumura-Tundisi, 1986; Matsumura-Tundisi, 1986).

Comments: Up to now this species has been found only in Lagoa Amarela. There is a problem related to the year of original description of this species. Dussart (1985a) published the descriptions and quoted Dussart & Matsumura-Tundisi (then in press) as the authors of this species. However Dussart's paper appeared first, in April 1985, and the paper of Dussart & Matsumura-Tundisi appeared 10 months later in February 1986. Consequently the original description first appeared in Dussart's paper (1985). As he quoted Dussart & Matsumura-Tundisi (in press) and used the same description and drawings published in that paper (1986), the authorship of this species should be cited as: Dussart & Matsumura-Tundisi (in Dussart), 1985.

Notodiaptomus gibber Poppe (in De Guerne & Richard), 1889
(Fig. 7)

Diaptomus gibber Poppe (in De Guerne & Richard), 1889: 95, pl. 2, figs. 2, 14, pl. 3, fig. 1, pl. 4, fig. 27; De Guerne & Richard, 1889: pl. 18, tab. 1; Poppe, 1891: 250; Herrick & Turner, 1895: 55, 63, pl. 8, fig. 1; Schmeil, 1897: 172, pl. 14, figs. 4-5; Richard, 1897a: 276, 298; Giesbrecht & Schmeil, 1898: 82; Sars, 1901: 10, 12; Mrázek, 1901: 15; Daday, 1905: 150, 152; Tollinger, 1911: 70, 272, 273, fig. F; Pesta, 1927: 80; Wright, 1927: 73, 75, 89, 100, 102, pl. 6, figs. 4-6; 1938a: 298; 1938b: 562; Brehm, 1935b: 298; 1938: 30, 31; 1958a: 167; Brandorff, 1972: 49.
Notodiaptomus gibber n. comb., Pallares, 1963: 39, Pl. 1, figs. 1-17; Brandorff, 1976: 616, fig. 2; 1978a: 298; Löffler, 1981: 15; Dussart & Defaye, 1983: 133; 1995: 167; Dussart & Robertson, 1984: 391; Dussart & Frutos, 1986: 306; Matsumura-Tundisi, 1986: 547, fig. 100; Battistoni, 1995: 959; Rocha *et al.*, 1995: 156; Santos-Silva, 1998: 209; Santos-Silva *et al.*, 1999: 127.

Notodiaptomus (Wrightius) gibber; Dussart, 1985a: 210, 214.

Distribution. BRASIL. **Santa Catarina**: Itajaí region (Poppe in De Guerne & Richard, 1889; Richard, 1897a). ARGENTINA. **Capital Federal**: Balneario Norte (Nuñez) (Pallares, 1963). URUGUAY. Rainpools in the Barra de Santa Lucia area, near Montevideo (Wright, 1938a); Barra Agas (Brehm, 1938).

Habitat: Pool, ponds, man-made lake.

Comments: This was the first true diaptomid described from South America. Dussart & Defaye (1983) added a question mark (?) about the status of this species as the type-species of genus *Notodiaptomus*, but in 1995 they accepted it as the type species of the genus. Santos-Silva *et al.* (1999) clarified this situation and redescribed the valid type species of *Notodiaptomus*.

Notodiaptomus henseni (Dahl, 1894)
(Fig. 6)

Diaptomus henseni Dahl, 1894: 11, 19, pl. 1, figs. 1-5, 5a; Giesbrecht & Schmeil, 1898: 78; Daday, 1905: 151, 152; Tollinger, 1911: 70; 272, 273, fig. E; Brian, 1926: 183; Pesta, 1927: 80; Wright, 1935: 214, 219, 220, 221, 222, 223, pl. 1, fig. 3; 1936a: 79; 1937a: 76; 1938b: 562; Kiefer, 1956: 242; Cipólli & Carvalho, 1973: 95, 97, 98, 100, 101, tab. 2; Reid, 1991: 737.
Diaptomus henseni; Wright, 1927 (nec Dahl, 1894): 73, 74, 75, 96, pl. 8, figs. 7-11.
Notodiaptomus henseni n. comb., Kiefer, 1936a: 197, fig. 7; Brehm, 1958a: 168; Brandorff, 1972: 44; 1976: 616, fig. 2; Andrade & Brandorff, 1975: 97; Löffler, 1981: 15; Dussart & Defaye, 1983: 134; Dussart, 1984a: 34, 39, 43, 46, fig. 3; Robertson & Hardy, 1984: 346, tab. 3; Matsumura-Tundisi, 1986: 542, figs. 81-85; Reid & Turner, 1988: 492; Cicchino *et al.*, 1989: 98-105, figs. 1a-f, 2, 3, 4, 5; Cicchino, 1994: 145, fig. 6; Zoppi de Roa, 1994: 1384-1386,

tab. 1; Rocha *et al.*, 1995: 156; Santos-Silva, 1998: 209; Santos-Silva *et al.*, 1999: 127; Espíndola *et al.*, 2000: 179, 180, 185, 189, 190, tab. 2, fig. 6.

Notodiptomus (Notodiptomus) henseni; Dussart, 1985a: 208.

Distribution. BRASIL. **Amazonas**: Balbina Reservoir, Rio Uatumã (present report). **Pará**: Mouth of Rio Tocantins (Dahl, 1894); Tucuruí Reservoir (Espíndola *et al.*, 2000); all following records by Cipólli & Carvalho (1973: tabs. 2, 4) from the Rio Guamá, Capim, and Tocantins regions: Baía do Marajó; Ariacana, Rio Capim; flooded area near Lago Timbiras, Caranandeua; Lago Timbiras, Caranandeua; Lago Maria Preta, Rio Capim; Lago Jurumundeua, Caranandeua; Lago Bernardino, Santana do Capim; Igarapé (stream) Uruazinho, Maiauatá; Igarapé Jacarequara, Abaetetuba; Rio São Lourenço, Furo de Panaquera; Igarapé do Inó, Furo de Panaquera; Igarapé Coelho, Baía do Maratapé; Rio Pindobal, Baía de Maratapé; Igarapé do Grilo, Baía de Maratapé; Paraná Samuuma, Baía de Maratapé; Igarapé do Mapará, Paraná Samuuma; Rio Tocantins, Cametá; Igarapé da Maloca, Cametá; Igarapé Aricurá, Cametá; Igarapé do Espírito Santo, Baião; Igarapé Murú; Rio Tocantins, Tucuruí; Marginal lagoon of the Rio Tocantins, Jatobal; Laguinho, Tucuruí; Lago Trocará between Tucuruí and Baião. **Maranhão**: Lago José Maria, Rio Mearim (Matsumura-Tundisi, 1986). COLOMBIA. Río Guaviare (Cicchino *et al.*, 1989). VENEZUELA. **Apure**: flooded grassland of Mantecal, 07°35'N, 69°10'W (Cicchino *et al.*, 1989; Zoppi de Roa, 1994). **Carabobo**: Lago Valencia (Cicchino *et al.*, 1989). **Delta Amacuro**: Caño Manamo (Cicchino *et al.*, 1989; Dussart, 1984a); Caño Guara near Tucupita, Orinoco delta (Dussart, 1984a). **Guárico**: Río Portuguesa (Cicchino *et al.*, 1989).

Habitat: River mouth-lakes.

Comments: First species of Diaptomidae described from the Amazon basin. Cicchino *et al.* (1989) considered *Notodiptomus venezolanus* Kiefer (1954)

as synonymous with *Notodiptomus henseni* (Dahl, 1894). Dussart (1984a) also regarded *N. venezolanus* as synonymous with *N. henseni*.

Notodiptomus iheringi (Wright, 1935)
(Fig. 6)

Diaptomus iheringi Wright, 1935: 214, 219, 221, 223, 226, 229, pl. 1, fig. 4, pl. 2, figs. 3, 5-11; 1936a: 80, 81; 1937a: 76; 1938a: 300; 1938b: 562; Brehm, 1958a: 140, 146, 168; 1960: 49; Cipólli & Carvalho, 1973: 95, 97, 98, 101, tab. 2; Reid, 1991: 738, 740.

Notodiptomus iheringi n. comb., Kiefer, 1936a: 197, figs. 3, 4; 1956: 242; Brandorff, 1972: 44; 1976: 616, 621, fig. 2; Löffler, 1981: 15; Sendacz & Kubo, 1982: 54, 69-71, 85-86, figs. 25-29, tab. 3; 1999: 526; Dussart & Defaye, 1983: 137; Arcifa, 1984: 143, tab. 7; Reid & Esteves, 1984: 310-311, 317, 321, 322, tab. 2; Robertson & Hardy, 1984: tab. 3; Reid, 1985: 574-579, 589, figs. 1-28; 1987: 378; 1991: 738, 740; Sendacz *et al.*, 1985: 190, 193, 195, 196, 201, 203, 205, 207, tabs. 4, 6, 8, 10, 12; Matsumura-Tundisi, 1986: 542, 547, figs. 66-72, 100; Rocha *et al.*, 1990: 94, tab. 5; Lansac-Tôha *et al.*, 1992: 43, 45, 47; Tomm *et al.*, 1992: 57, 58, 64, 67, 69; Sendacz, 1993: 35; 1997: 624, 625, tab. 2; Reid & Pinto-Coelho, 1994: 93, 95, 99, 100, 108; Tundisi & Matsumura-Tundisi, 1994: 27; Nogueira & Panarelli, 1997: 62, 65, 68, 75, tabs. 4, 5, 6, fig. 5; Rocha *et al.*, 1995: 155, 156; Lima *et al.*, 1996: 115, fig. 3; Lansac-Tôha *et al.*, 1997: 140, tab. 3; Santos-Silva, 1998: 209; Carvalho & Sendacz, 1998: 1525, 1527; Henry & Nogueira, 1999: 667, 668, tab. 4; Matsumura-Tundisi, 1999: 44; Santos-Silva *et al.*, 1999: 127.

Notodiptomus (Wrightius) iheringi; Dussart, 1985a: 210.

Notodiptonus iheringi; Rolla *et al.*, 1990: 241, tab. 6.
[error]

Distribution. BRASIL. **Pará**: Several sites in the

Guamá, Capim and Tocantins river basins (Cipólli & Carvalho, 1973): Lago Timbiras, Caranandeua; Lago Jurumundeua, Caranandeua. Furo de Panaquera: Rio São Lourenço, Igarapé Sororoca. Baía de Maratapé: Igarapé do Grilo, Paraná Samuuma; Igarapé do Mapará, Paraná Samuuma. Cametá: Rio Tocantins, Igarapé da Maloca, Igarapé Aricurá; Igarapé Murú. Rio Tocantins, Tucuruí; marginal lagoon at Jatobal; Laguinho, Tucuruí. **Ceará:** Açude in Fortaleza (Matsumura-Tundisi, 1986). **Paraíba:** Açude Puxinanã, at the village of the same name, near Campina Grande (Wright, 1935). **Pernambuco:** Açude at Garanhuns (Wright, 1935). **Mato Grosso do Sul:** Lake Guaraná and Baía River, a tributary of the Paraná River (Lima *et al.*, 1996); Nova Andradina, Upper Paraná River floodplain (Lansac-Tôha *et al.*, 1992); Pato and Pousada das Garças lakes and Baía, Curutuba, Ivinheima, and Paraná rivers (Lansac-Tôha *et al.*, 1997). **Minas Gerais:** Volta Grande Reservoir (19°57'52"-20°10'00"S, 48°25'-47°35'W) (Rolla *et al.*, 1990). **Rio de Janeiro:** Lagoa da Saudade, 21°42'S, 41°20'W and Lagoa do Campelo, 21°40'S, 41°11'W (Reid & Esteves, 1984; Reid, 1985). **São Paulo:** Itapeva and Funil reservoirs, Rio Paraíba do Sul basin (Sendacz & Kubo, 1982; Sendacz *et al.*, 1985); Rio Capivara and Tietê (Matsumura-Tundisi, 1986); Barra Bonita Reservoir, Rio Tietê (Tundisi & Matsumura-Tundisi, 1994); Upper Paraná River: Ilha Solteira Reservoir, Jupia Reservoir, Lakes Comprida 1 and 2, Lake Jota, Paraná River (Sendacz, 1997); Rio Abaixo, sand pit, Paraíba do Sul River basin (Carvalho & Sendacz, 1998); Jurumirim Reservoir (23°08'-23°35'S, 48°30'-49°13'W), Paranapanema River basin (Nogueira & Panarelli, 1997; Henry & Nogueira, 1999). **Paraná:** Itaipu Reservoir (Matsumura-Tundisi, 1986; Tomm *et al.*, 1992); Porto Rico, Upper Paraná River floodplain (Lansac-Tôha *et al.*, 1992); Salto Osório and Foz de Areia reservoirs (present report).

Habitat: Reservoirs, lakes, ponds.

Comments: Commenting on the distribution of this species Wright (1935) stressed that "so far as is known,

this species is restricted to the interior of Northeast Brasil, where it was taken in 72 waters. Although there is abundant opportunity for transport into the littoral region rivers, it was not found east of Mogéiro de Baixo, State of Paraíba, or Gravatá, State of Pernambuco. These towns are located near the eastern limit of the semi-arid region. The number of samples from the littoral is too small to show with certainty that the species is not present (except possibly as a transient), but it appears that such is the case. It is noteworthy, too, that it was not encountered in the "brejo" region (high and rainy) about the town of Areia. Over most of its range, *D. iheringi* was the only species found, but in the vicinity of Campina Grande it was commonly associated with *D. nordestinus*, and near Açude Pilões with *D. azevedoi*. On the basis of available data it may be said that *D. iheringi* is the characteristic form of the semi-arid interior, and *D. nordestinus* of the humid coastal region." Reid (1985) later observed that *N. iheringi* is found in several places outside northeastern Brasil, and noted that this species might have a much broader ecological range than postulated by Wright (1935).

Notodiptomus incompositus (Brian, 1926)

(Fig. 6)

Diaptomus incompositus Brian, 1926: 182, figs. 7-9; 1927: 131; Brehm, 1933a: 284; 1935b: 298, 299, 305; 1958a: 168; 1965: 3; Wright, 1937a: 76; 1938a: 298, 299, 301; 1938b: 562; 1939: 645, 647, 648; Olivier, 1955: 299; Reid, 1991: 738.

Diaptomus paranaensis; Pesta, 1927: 68, figs. 1a-d; Brehm, 1965: 7, 8, 11.

Notodiptomus incompositus n. comb., Kiefer, 1936a: 197; 1956: 242; Brehm, 1938: 27, 29; Ringuelet, 1958a: 45, 47, 52; 1958b: 18, 22, 23, 24, 25; 1962: 87, 92; 1968: 265; Brandorff, 1972: 44; 1976: 616, 620, 621, 622, fig. 2; Bowman, 1973: 199; Paggi & José de Paggi, 1974: tab. 1; 1990: 690, 692, tab. 2; Pezzani, 1977: 139; José de Paggi, 1978: 150, tab. 1;

1981: 199; Dussart, 1979: 6; Löffler, 1981: 15; Dussart & Defaye, 1983: 135; Dussart & Frutos, 1986: 306, 307; 1987: 243, 244, 245, 246, 248, pl. 3, figs. 13-16; Montú & Gloeden, 1986: 6, 80, fig. 25a-d; José de Paggi & Paggi, 1988: 98; Reid & Moreno, 1990: 732; Reid, 1991: 738; Sendacz, 1993: 34, 35; Frutos, 1993: 112, tab. 3; Battistoni, 1995: 959; Rocha *et al.*, 1995: 155, 156; Santos-Silva, 1998: 210; Santos-Silva *et al.*, 1999: 127; Bohrer & Araújo, 1999: 92, 94, 95, figs. 1-4.

Notodiptomus (Notodiptomus) incompositus; Dussart, 1985a: 201, 208.

Distribution. **BRASIL. Rio Grande do Sul:** Lagoa dos Patos (Montú & Gloeden, 1986; Bohrer & Araújo, 1999); Lagoa dos Quadros, Porto Alegre and Lagoa Negra, Viamão (Bohrer & Araújo, 1999). **BOLIVIA.** Laguna Alalay, Cochabamba (present report), 17°23'43"S, 66°09'35"W. **ARGENTINA.** Middle Paraná River between the cities of Santa Fé and Paraná (Paggi & José de Paggi, 1974); main course of the Paraná River between Santa Fe and Buenos Aires (José de Paggi, 1978); Middle Paraná River (José de Paggi, 1981; Paggi & José de Paggi, 1990). **Buenos Aires:** Río de La Plata, Tigre (Brian, 1926); Abra Nueva at Paraná Delta, near Tigre (Pesta, 1927); Lago del Vivero, Palermo; roadside pool, three km south of Glew, on the road to San Vicent (Wright, 1938a); two localities near Dufaur; several localities near Buenos Aires (Wright, 1939); the following records were reported by Ringuelet (1958a): Olivera between Luján and Mercedes; pool in the Isla Maciel; pool near Del Gato stream; Río Santiago; vicinity of La Plata; pond at La Plata; Amichetti pond at Los Talas; Carpincho Lagoon, Junín; Lagoon Alcollaradas de Bolívar; Lobos Lagoon; Las Flores Grandes Lagoon; Saladillo stream at Atucha; Plaza Montero Lagoon at Las Flores; Monte Lagoon; Las Perdices Lagoon; Vitel Lagoon; pool at Chascomus; Adela Lagoon; Del Burro Lagoon; Chis Chis Lagoon; San Ramón Lagoon at Bragado; Tapalqué stream; Camarón Grande Lagoon, Pila; El Talita Lagoon; La Totorá Lagoon; Del Estado Lagoon;

Sauce Grande Lagoon; Alsina Lagoon; Cochicó Lagoon; Del Pastero Lagoon; La Brava Lagoon; Los Padres Lagoon; mouth of Sauce Grande stream (Ringuelet, in Olivier, 1955); Chascomus Lagoon (Wright, 1938a); Hoya del Plata (Ringuelet, 1962); Monteros Lagoon, Laprida (Brehm, 1965); La Brava Lagoon, Mar del Plata (Brehm, 1965); artificial lake at Balneario de Quilmes (Reid, 1991). **Capital Federal:** Río Riachuelo at la Boca; Palermo (Brian, 1926); Zoological Garden, in the city of Buenos Aires (Pesta, 1927). **Chaco:** Río Tragadero, Colonia Benitz (Brian, 1926); Resistencia (Brehm, 1965); Río de Oro (Dussart & Frutos, 1987). **Corrientes:** Laguna 1 (La Turbia), Isla del Cerrito, Río Paraná and Laguna 2 (Los Pajaros), Isla Nueva Cerrito, Río Paraná (Frutos, 1993). **Entre Ríos:** Colón and Concepción, Río Uruguay (Brian, 1926). **Formosa.** Pilagá stream and Arroyo Salado (Dussart & Frutos, 1987). **Río Negro:** Valcheta stream (Ringuelet, 1958a). **San Luis:** 25 lagoons, in the southern part of the province, the majority at Pedernera (Wright, 1939); Tres Lagunas (Reid, 1991). **Santa Fé:** Fives Lille stream (Brehm, 1965); Resistencia Chaco (Brehm, 1965). **URUGUAY.** **Soriano:** Palmira, Río Uruguay (Brian, 1926). **Montevideo:** rainpools in the Barra de Santa Lucia area, near Montevideo and Paso de Arena (Wright, 1938a).

Habitat: Pools, ponds, shallow lakes.

Comments: The highest- altitude record of this species is from Laguna Alalay, Cochabamba (2560 m above sea level), as far as could be found in the literature.

Notodiptomus inflatus (Kiefer, 1933)

(Fig. 6)

"*Diaptomus*" *inflatus* Kiefer, 1933: 38, pl. 1, figs. 1-7; Brandorff, 1976: 618, fig. 3.

Diaptomus inflatus; Wright, 1936a: 79; 1937a: 76; 1938b: 562; Thomasson, 1953: 194; Brehm, 1958a: 166; Andrade & Brandorff, 1975: 102.

Notodiptomus inflatus n. comb., Kiefer, 1936a: 197; 1956: 242; Brandorff, 1972: 45; Andrade & Brandorff, 1975: 97; Löffler, 1981: 15; Dussart & Defaye, 1983: 136; Dussart & Robertson, 1984: 391; Robertson & Hardy, 1984: tab. 3; Rocha *et al.*, 1995: 154, 156; Santos-Silva *et al.*, 1999: 127.

Notodiptomus (Wrightius) inflatus; Dussart, 1985a: 210.

Distribution. BRASIL. **Amazonas**: near Manaus (Kiefer, 1933).

Habitat: Rivers.

Comments: It is puzzling that no one has found this species again near Manaus. Manaus and surroundings is one of the few areas that could be said to be well known compared to other areas in the Amazon region. This species might have been confused with another one. If the IUCN index is applied, this species should be considered extinct.

Notodiptomus isabelae (Wright, 1936)
(Fig. 6)

Diaptomus isabelae Wright, 1936a: 81, 82, pl.2, fig. 5; 1937a: 76; 1938b: 563; Brehm, 1938: 30, 31; 1958a: 143; Brandorff, 1972: 50; Reid, 1991: 740.

Notodiptomus isabelae n. comb., Kiefer, 1956: 242; Bowman, 1973: 199; Brandorff, 1976: 616, fig. 2; Paggi, 1976a: 153, 154, figs. 1-25; Löffler, 1981: 15; Dussart & Defaye, 1983: 137; Dussart & Frutos, 1986: 307, figs. 3-6; Matsumura-Tundisi, 1986: 542, 547, 552, figs. 55-60, 100; Reid, 1987: 377, tab. 1; José de Paggi & Paggi, 1988: 101, tab. 2; Reid, 1991: 740; Lansac-Tôha *et al.*, 1992: 43, 45, 47; Sendacz, 1993: 35; Frutos, 1993: 112: tab. 3; Lansac-Tôha *et al.*, 1995: 73; Battistoni, 1995: 959; Rocha *et al.*, 1995: 155, 156; Lima *et al.*, 1996: 115, fig. 3; Bonecker *et al.*, 1996: 897, fig. 3; Sendacz, 1997: 624, 625, tab. 2; Rocha & Matsumura-Tundisi, 1997:

293, tabs. 7, 9; Tundisi *et al.*, 1997: 425, 434, tab. 11; Lansac-Tôha *et al.*, 1997: 140, 141, tab. 3; Santos-Silva, 1998: 210.

Notodiptomus (Notodiptomus) isabelae; Dussart, 1985a: 208.

Distribution. BRASIL. **Pernambuco**: Two pools near Jatobá, both connected with Rio São Francisco at time of high water (Wright, 1936a); “açudes” (ponds) (Matsumura-Tundisi, 1986). **Mato Grosso do Sul**: floodplain of Upper Paraná River, near Nova Andradina (Lansac-Tôha *et al.*, 1992); Lake Pousada das Garças, floodplain of Upper Paraná River (Lansac-Tôha *et al.*, 1995); Lake Guaraná and Baía River, floodplain of Paraná River (Lima *et al.*, 1996); lakes Pato, Guaraná, Pousada das Garças, Fechada, and rivers Baía, Ivinheima and Paraná (Lansac-Tôha *et al.*, 1997). **Minas Gerais**: Lagoa Bonita, Rio Doce valley (Matsumura-Tundisi, 1986); Rio Doce at Belo Oriente, near Ipatinga, upstream from its confluence with Rio Santo Antônio (Bonecker *et al.*, 1996); lakes Palmeiras, Almacega, Carvão, Azeite, Poço Fundo, Águas Claras, Jacaré, Ariranha, Palmeirinha and Ferrugem, Rio Doce valley (Tundisi *et al.*, 1997). **São Paulo**: lakes Comprida 1 and 2, Lake Jota in the Upper Paraná River (Sendacz, 1997). **Paraná**: floodplain of Upper Paraná River, near Porto Rico (Lansac-Tôha *et al.*, 1992). ARGENTINA. **Corrientes**: Laguna Turbia, Isla del Cerrito, Río Paraná (Dussart & Frutos, 1986). **Santa Fé**: Madrejón Don Felipe; Madrejón El Negro, Isla Carbajal; Santa Fé River (Paggi, 1976a); Santa Fé River (José de Paggi & Paggi, 1988).

Habitat: Pool, rivers, lakes.

Notodiptomus jatobensis (Wright, 1936)
(Fig. 6)

Diaptomus jatobensis Wright, 1936a: 82, pl. 2, fig. 4; 1937a: 76; 1938b: 563; Brandorff, 1972: 50; Cipólli & Carvalho, 1973: 95, 97, 98, 101, tab. 2;

Reid, 1991: 740.

Notodiaptomus jatobensis n. comb., Kiefer, 1956: 242; Brehm, 1958a: 145; Brandorff, 1976: 616, fig. 2; Löffler, 1981: 15; Dussart & Defaye, 1983: 137; Robertson & Hardy, 1984: tab. 3; Matsumura-Tundisi, 1986: 542, 547, figs. 73-77, 100; Reid, 1987: 377; 1991: 740; Sendacz, 1993: 35; 1997: 624, 625, tab. 2; Rocha *et al.*, 1995: 155, 156; Santos-Silva, 1998: 211.

Notodiaptomus (*Notodiaptomus*) *jatobensis*; Dussart, 1985a: 208.

Distribution. BRASIL. **Pará:** Igarapé (stream) Urubu, between Tucuruí and Baião (Cipólli & Carvalho, 1973). **Pernambuco:** near Jatobá (Wright, 1936a). **Bahia:** pool at Itaparica Falls, on the Bahia side of Rio São Francisco (Wright, 1936a). **Distrito Federal:** Lago Paranoá at Brasília (Matsumura-Tundisi, 1986). **São Paulo:** Ilha Solteira Reservoir and Paraná River (Sendacz, 1998). **Paraná:** Itaipu Reservoir (Matsumura-Tundisi, 1986).

Habitat: Pools, lakes, reservoirs, streams.

Notodiaptomus kieferi Brandorff, 1973
(Fig. 7)

Notodiaptomus kieferi Brandorff, 1972: 4, 30, 50, figs. 40-48; 1973b: 205, 206, pl.1, figs. 1-6, pl. 2, figs. 1-5; 1976: 616, fig. 2; Andrade & Brandorff, 1975: 97; Löffler, 1981: 15; Dussart & Defaye, 1983: 138; Dussart, 1984a: 35, 38, 39, 49, fig. 7; Dussart & Robertson, 1984: 391; Hardy *et al.*, 1984: 530; Robertson & Hardy, 1984: tab. 3; Defaye & Dussart, 1989: 113; Magalhães *et al.*, 1988: 271; Cicchino, 1994: 145, fig. 8; Rocha *et al.*, 1995: 156; Santos-Silva *et al.*, 1989: 726, 728, figs. 116-135.

Notodiaptomus (*Wrightius*) *kieferi*; Dussart, 1985a: 210.

Notodiaptomus echinatus Defaye & Dussart, 1989: 113.

“*Diaptomus echinatus*”; Defaye & Dussart, 1989: 113.

Distribution. BRASIL. **Amazonas:** Lago Catalão, floodplain lake and Lago Janauari, near Manaus (Brandorff, 1972); Rio Solimões/Amazonas, Lago Camaleão (Ilha da Marchantaria), Paraná do Rei; Lago Catalão and Lago Janauari, Rio Negro, near Manaus (Santos-Silva *et al.*, 1989). **Pará:** Curuá-Una Reservoir, 2°48'38"S, 54°18'55"W (Santos-Silva *et al.*, 1989). VENEZUELA. **Amazonas:** Rio Atabapo (Dussart, 1984a). **Bolívar:** Guri, man-made lake near the dam on Caroni River; Río Orinoco, right side, at Ciudad Bolívar (Dussart, 1984a).

Habitat: Lakes, reservoirs.

Comments: Defaye & Dussart (1989) found *N. echinatus* (Lowndes, 1934) in French Guiana and considered *N. kieferi* Brandorff (1973b) as synonymous with that species. They commented that “*N. kieferi*” reported by Dussart (1984a) in Venezuela is in reality the previously known *N. echinatus* (Lowndes, 1984). This was not an advisable attitude, because the type material of *N. kieferi* from Lago Catalão, near Manaus, Brasil was not examined, nor was the type material of *N. echinatus*. It seems prudent to accept *N. kieferi* as a valid species until this question is resolved.

Notodiaptomus nordestinus (Wright, 1935)
(Fig. 6)

Diaptomus nordestinus Wright, 1935: 213, 214-221, 222, 224, 225, 226, 228, pl.1, figs. 1, 6-8, 10-14, pl. 2, figs. 1, 2, 4; 1936a: 80; 1937a: 73, 76; 1938a: 300, 306; 1938b: 562; Brehm, 1960: 50; Reid, 1991: 738, 740.

Notodiaptomus nordestinus n. comb., Kiefer, 1936a: 197, fig. 5; 1956: 242; Löffler, 1963: 208; Brandorff, 1972: 45; 1976: 616, 621, fig. 2; Dussart, 1979: 6; 1984a: 46, 48, fig. 5B; Löffler, 1981: 15; Dussart & Defaye, 1983: 137; Dussart & Frutos, 1987: 246; Cicchino *et al.*, 1989: 101; Reid, 1991: 738, 740;

Rocha *et al.*, 1995: 156; Santos-Silva, 1998: 211; Santos-Silva *et al.*, 1999: 127.
Notodiptomus (Notodiptomus) nordestinus; Dussart, 1985a: 208.

Distribution. BRASIL. **Ceará**: Five waters in Rio Jaguaribe basin, four near Fortaleza, and one near Sobral (Wright, 1938a). **Paraíba**: Açude Simão, Campina Grande; pool near Campina Grande; Açude Linda Flor, Mogeiro de Baixo, and Lapa, Campina Grande; pool, Cabedello (Wright, 1935; Reid, 1991).

Habitat: Pools and man-made lakes.

Comments: Found only near the coast. Santos-Silva (1998) erroneously cited this species as occurring in Venezuela.

Notodiptomus paraensis Dussart & Robertson, 1984 (Fig. 7)

Notodiptomus paraensis Dussart & Robertson, 1984: 389-394, figs. 1-3; Reid, 1987: 378; Magalhães *et al.*, 1988: 271; Santos-Silva *et al.*, 1989: 726, 728, figs. 69-93; Rocha *et al.*, 1995:156; Santos-Silva, 1998: 211.

Notodiptomus (Wrightius) paraensis; Dussart, 1985a: 210, fig. 7.

Distribution. BRASIL. **Pará**: "Stations" south of Santarém (Dussart & Robertson, 1984; Dussart, 1985a); Curuá-Una Reservoir, 02°48'38"S, 54°18'55"W (Dussart, 1985a; Santos-Silva *et al.*, 1989).

Habitat: Reservoir, rivers.

Notodiptomus santaremensis (Wright, 1927) (Fig. 7)

Diaptomus santaremensis Wright, 1927: 75, 82, 100, 102, pl. 2, figs. 6-9; 1937a: 76; 1938b: 562.

Notodiptomus santaremensis n. comb., Kiefer, 1936a: 197; 1956: 242; Brehm, 1958a: 147; Brandorff, 1972: 45; Andrade & Brandorff, 1975: 97; Dussart & Defaye, 1983: 136; Robertson & Hardy, 1984: tab. 3; Santos-Silva *et al.*, 1989: 726, 728, figs. 94-115; Rocha *et al.*, 1995: 156; Santos-Silva, 1998: 211; Santos-Silva *et al.*, 1999: 127.

"*Diaptomus*" *santaremensis*; Brandorff, 1976: 618, fig. 3; Löffler, 1981: 15; Reid, 1991: 737.

Notodiptomus (Notodiptomus) santaremensis; Dussart, 1985a: 208.

Distribution. BRASIL. **Pará**: Lake near Santarém (Wright, 1927); Marajó Island (Wright, 1938b); Curuá-Una Reservoir, 02°48'38"S, 54°18'55"W (Santos-Silva *et al.*, 1989).

Habitat: Lakes, reservoirs.

Notodiptomus spinuliferus Dussart & Matsumura-Tundisi (in Dussart, 1985a), 1985 (Fig. 7)

Notodiptomus spinuliferus; Dussart, 1985a: 208, fig. 6; Dussart & Frutos, 1986: 307, 308; Dussart & Matsumura-Tundisi, 1986: 250, fig. 1; Matsumura-Tundisi, 1986: 537, figs. 34-37, 100; Reid, 1987: 377; José de Paggi & Paggi, 1988: 101, tab. 2; Sendacz, 1993: 35; 1997: 624, 625, tab. 2; Frutos, 1993: 112, tab. 3; Battistoni, 1995: 959; Rocha *et al.*, 1995: 156; Lansac-Tôha *et al.*, 1997: 140, tab. 3; Santos-Silva, 1998: 212.

Notodiptomus cf. *spinuliferus*; Reid & Moreno, 1990: 726, 729, 730, tabs. 2, 3.

Notodiptomus (Notodiptomus) spinuliferus; Dussart, 1985a: 208.

Distribution. BRASIL. **Mato Grosso do Sul**: Southern Pantanal, region of Corumbá, Rio Paraguay: near

Marinha Ladário (19°02'S, 57°34'W), near Port, near Corumbá's entrance, 2nd access, Corumbá (19°00'S, 57°40'W); Rio Capivari: Fazenda Berenice (Reid & Moreno, 1990); Lake Guaraná and Paraná River (Lansac-Tôha *et al.*, 1997). **São Paulo:** Ilha Solteira Reservoir (Dussart & Matsumura-Tundisi, 1986; Matsumura-Tundisi, 1986; Sendacz, 1997). **Paraná:** Itaipu Reservoir (Matsumura-Tundisi, 1986); Paraná River and Jupiá Reservoir (Sendacz, 1997). ARGENTINA. **Corrientes:** (Dussart & Frutos, 1986); Laguna 1 (La Turbia), Isla del Cerrito, Río Paraná and Laguna 2 (Los Pajaros), Isla Nueva Cerrito, Río Paraná (Frutos, 1993). **Santa Fé:** Río Salado, Laguna Juan de Garay, near Santo Tomé (José de Paggi & Paggi, 1988).

Habitat: Lakes, reservoirs.

Notodiptomus transitans (Kiefer, 1929)
(Fig. 7)

Diaptomus transitans Kiefer, 1929: 307, figs. 4a-d; Wright, 1938b: 562; 1939: 648; Brehm, 1958a: 167; Brandorff, 1972: 52; Dussart, 1984b: 255; Forró, 1986: 560, tab. 1; Reid, 1991: 738.

Diaptomus pygmaeus (non Pearse, 1906) Brehm, 1956b: 543-545, figs. (Abb.) 4-7; 1960: 52; Dussart & Defaye, 1983: 64.

Diaptomus s.l. *mildredae* Brehm, 1960: 52-54, figs. 114-116; Dussart & Defaye, 1983: 64; Brandorff, 1972: 51; 1976: 618, fig. 3; Dussart, 1984b: 255; 1985a: 201.

Notodiptomus transitans n. comb., Ringuelet, 1958a: 45, 46, 54; Brandorff, 1976: 616, fig. 2; Löffler, 1981: 15; Dussart & Defaye, 1983: 136; Dussart & Frutos, 1986: 306, 307; 1987: 244, 245, 246; Matsumura-Tundisi, 1986: 537, 542, figs. 38-42, 100; Reid, 1991: 738; Battistoni, 1995: 959; Rocha *et al.*, 1995: 156.

"*Diaptomus*" *transitans*; Brandorff, 1978a: 298; Dussart, 1985a: 201.

Notodiptomus (*Caleodiptomus*) *transitans*; Dussart, 1985a: 214.

Distribution. BRASIL. **São Paulo:** Capivara Reservoir, Paranapanema River basin (Matsumura-Tundisi, 1986). **Paraná:** Itaipu Reservoir (Matsumura-Tundisi, 1986). PARAGUAY. (Kiefer, 1929). ARGENTINA. **Chaco:** Río de Oro (Dussart & Frutos, 1987). **Córdoba:** (Wright, 1938b); Lago Embalse Río Tercero; Lago Embalse San Roque; lake at Parque Sarmiento; city of Córdoba (Wright, 1939); San Marcos (Brehm, 1956b); Embalse San Roque, Río Primero (Reid, 1991).

Habitat: Lakes, reservoirs.

Comments: Brehm (1956b) described as *Diaptomus pygmaeus* a very small species collected together with *Argyrodiaptomus denticulatus* from San Marcos, Córdoba, Argentina. Later Brehm (1960) recognized that he could not use the name because it was preoccupied by *Diaptomus pygmaeus*, Pearse, 1906, and renamed the species *Diaptomus mildredae* in honor of Mildred S. Wilson. Dussart (1984b) pointed out that the "*Diaptomus*" *mildredae* described by Brehm (1956b) is the same species described by Kiefer (1929) as *Diaptomus transitans*. In 1985a, Dussart reaffirmed this idea and included *N. transitans* with *N. coniferoides* in his proposed new subgenus *Caleodiptomus*.

Genus *Odontodiptomus* Kiefer, 1936

Nowadays this genus consists of three South American species: *Odontodiptomus michaelsoni* (Mrázek, 1901), *O. thomseni* (Brehm, 1933), and *O. paulistanus* (Wright, 1936). Wright (1927), commenting on the relationships of *Diaptomus* species in South America, noted that only one species (*Diaptomus michaelsoni*) resembles North American forms. It has some points in common with members of the *albuquerqueensis* group, particularly *D.*

asymmetricus Marsh, 1907. Wright (1927) stated “that the degree of resemblance is such that they undoubtedly would be placed in the same group if they occupied the same general area. They are, however, widely separated, *D. asymmetricus* being found in Cuba and *D. michaelsoni* near Buenos Aires in Argentina.” Brehm (1933c), describing *Diaptomus thomsoni*, discussed its relationship with *Diaptomus michaelsoni* if the criteria established in Wright’s key (1927) are used.

When Wright (1936a) described *Diaptomus paulistanus*, the only species up to now recorded from Brasil, had noted the close relationship among *D. thomsoni* Brehm (1933), *D. michaelsoni* Mrázek (1901), and *D. paulistanus*. On that occasion he designated the three as the “*thomsoni* group” until a formal subdivision of the South American species could be proposed.

Kiefer (1936a) proposed the name *Odontodiaptomus* as a new genus, and included only *Diaptomus thomsoni* (Brehm, 1933) in it, because it is a very remarkable species representing a particular evolutionary lineage among the South American diaptomids. Wright (1937a) again emphasized the close relationship among *D. paulistanus*, *D. thomsoni*, and *D. michaelsoni*. Brehm (1958b) included *D. michaelsoni* in the genus *Odontodiaptomus*, although he did not state clearly the status of *D. paulistanus* as a member of this genus. In 1976, Brandorff included *D. paulistanus* in the genus *Odontodiaptomus*, together with the two species already listed by Brehm (1958b).

Up to now this genus is restricted to the southern part of the continent, and only *Odontodiaptomus paulistanus* occurs in Brasil.

Odontodiaptomus paulistanus (Wright, 1936)
(Fig.2)

Diaptomus paulistanus Wright, 1936a: 83, pl. 2, figs. 1-3; 1937a: 66, 67, 71, 78, pl. 1, figs. 1-7, pl. 2, fig. 2; 1938b: 563; Brehm, 1958a: 164; 1958b: 2, 3, 4, 5;

1958c: 576; Brandorff, 1972: 51; Paggi, 1976b: 91; Reid, 1991: 740.

Odontodiaptomus paulistanus n. comb., Brandorff, 1976: 616, fig. 3; Dussart, 1979: 8; Löffler, 1981: 15; Sendacz & Kubo, 1982: 54, 58, 61, figs. 9-14, tab. 3; 1999: 526; Dussart & Defaye, 1983: 140; 1995: 169; Arcifa, 1984: 138-140, 143, tabs. 2, 3, 7; Sendacz *et al.*, 1985: 190, 193, 196, 199, 203, 205, 207, tabs. 4, 8, 10, 12; Matsumura-Tundisi, 1986: 537, figs. 9-12, 100; Reid *et al.*, 1988: 533, 536, fig. 2; Reid, 1991: 740; Santos-Silva & Robertson, 1993: 104; Rocha *et al.*, 1995: 156; Lopes *et al.*, 1997: 45, tab. 1c; Santos-Silva, 1998: 212; Carvalho & Sendacz, 1998: 1525.

Notodiaptomus paulistanus n. comb., Dussart, 1985a: 214.

Distribution. BRASIL. **Minas Gerais:** Artificial lake in the city of Juiz de Fora (Wright, 1936a, 1937a). **São Paulo:** taken in five localities near the city of São Paulo: Rio Grande Reservoir, artificial lakes near the village of Santo Amaro, basin of ornamental fountain in the Jardim da Luz, Cubatão River in the village of the same name (Wright, 1936a, 1937a); Guarapiranga Reservoir (Wright, 1937a; Sendacz *et al.*, 1985; Matsumura-Tundisi, 1986; Sendacz & Kubo, 1999); Águas Claras and Juqueri reservoirs (Sendacz & Kubo, 1982; Sendacz *et al.*, 1985); Ponte Nova Reservoir, Rio Tietê basin (Sendacz *et al.*, 1985); Fumaça, França, Alecrim, and Serraria reservoirs, Rio Ribeira do Iguape basin (Sendacz *et al.*, 1985); Billings Reservoir (Matsumura-Tundisi, 1986); Ribeirão do Campo and Santa Branca reservoirs (Arcifa, 1984); Porto Seguro pond, Paraíba do Sul River (Carvalho & Sendacz, 1998). **Paraná:** River Iguaçu basin, Segredo Reservoir, sampling site Areia (Lopes *et al.*, 1997).

Habitat: Man-made lakes, pond.

Comments: Segredo Reservoir, Iguaçu basin, Paraná, is the southernmost recorded location of this species in Brasil.

Genus *Rhacodiaptomus* Kiefer, 1936

Wright (1927), when describing the first three species nowadays included in this genus, noted that “the most distinct and homogeneous group is that composed of *Diaptomus insolitus*, *D. calamensis* and *D. flexipes*. Their relationship is obvious.” Kiefer (1936a) raised this group to generic level. *Rhaco* means lobe, and Kiefer named them *Rhacodiaptomus* because of the lobed genital double somite of the females. Brandorff (1976) described two new species, expanded the list of characteristics of the genus, and provided separate keys for males and females. Subsequently two new species have been described: *R. ringueleti* Cicchino & Dussart, 1991, from the Orinoco basin, and *R. besti* Santos-Silva & Robertson, 1993, from the Brazilian Amazon. Santos-Silva & Robertson (1993) expanded the generic diagnosis by using all appendages. They stressed that only by more detailed morphological analysis of each species can the knowledge of this genus be improved, allowing further inter- and intrageneric comparative studies. Except for *R. ringueleti*, the Amazon basin houses all the species of genus.

Rhacodiaptomus besti Santos-Silva & Robertson, 1993 (Fig. 8)

Rhacodiaptomus besti Santos-Silva & Robertson, 1993: figs. 1-29; Rocha *et al.*, 1995: 157, tab. II; Santos-Silva, 1998: 212.

Distribution. BRASIL. **Amazonas**: Lago Amanã, 02°38'S, 64°38'W (Santos-Silva & Robertson, 1993); Rio Maués-Mirim, bay mouth, 03°20'S, 57°41'W; Rio Negro, in Tupuruquara, 0°26'S, 65°09'W; Lago Mamirauá, Tefé; Paraná do Rei, Careiro Island, Rio Amazonas, near Manaus (present paper). **Pará**: Lago Abui, Rio Trombetas; Lago Leonardo, Rio Trombetas; Lago Verde, Rio Tapajós (present report). **Rondônia**: Igarapé São Pedro, 09°36'S, 63°37'W (Santos-Silva &

Robertson, 1993); Lago Jacaré near Samuel Reservoir (present report).

Habitat: Lakes, streams.

Comments: This species is widely distributed in the Amazon region, but is restricted to clear- and blackwaters, or lakes that receive sediment-rich “white” water which later settles to the bottom.

Rhacodiaptomus calamensis (Wright, 1927)
(Fig. 8)

Diaptomus calamensis Wright, 1927: 75, 85, 100, 102, pl. 4, figs. 7-8, pl. 5, figs. 1-4; 1938b: 562; Brehm, 1933a: 284, 287; 1933b: 298, 300.

Rhacodiaptomus calamensis n. comb., Kiefer, 1936a: 198; Brehm, 1958a: 165; Brandorff, 1972: 6, 8, 13-16, 46, figs. 5-10; 1973a: 341-343, 347, 350-353, pl. 1, figs. 1c, 2c, 3c, 4c, pl. 1 3, figs. 1 a-o, pl. 1 4, figs. 1 a-f; 1976: 618, fig. 3; Andrade & Brandorff, 1975: 97; Löffler, 1981: 15; Brandorff *et al.*, 1982: 76; Dussart & Defaye, 1983: 139; 1995: 169; Robertson & Hardy, 1984: tab. 3; Arcifa, 1984: 143, tab. 7; Cicchino & Dussart, 1991: 105; Reid, 1991: 740; Santos-Silva & Robertson, 1993: 95; Rocha *et al.*, 1995: tab. II; Santos-Silva, 1998: 212.

Distribution. BRASIL. **Pará**: Santarém, 02°24'S, 54°44'W (Wright, 1927); Lago Jurucuí, Rio Tapajós, near the village of Alter-do-Chão (Brandorff, 1973a); Rio Maró, about 3 km downstream from the waterfall; Igarapé Mentai, Lago da Boca; Rio Arapiuns, mouth of Igarapé Curi; Rio Arapiuns downstream from Ponta do Gurupá; Rio Arapiuns, bay above Ponta Icuxí (present report); Rio Tapajós, above Ponta da Maria José; Rio Tapajós, near Santarém, 2°24'S, 54°44'W; Lago Mureta, Rio Tapajós, near the Village of Alter-do-Chão; Lago Verde in the village of Alter-do-Chão; Alter-do-Chão, Rio Tapajós (present report). **Rondônia**: Calama, Rio Madeira, 08°03'S, 62°52'W (Wright, 1927);

Lago Aimin, Rio Machado/Ji-Paraná, near Calama; Lago Cururu, Rio Machado/Ji-Paraná, near Calama (present report). **Mato Grosso:** Lago Genipapo, Rio Aripuanã (present report).

Habitat: Lakes.

Rhacodiaptomus calatus Brandorff, 1973
(Fig. 8)

Rhacodiaptomus calatus Brandorff, 1973a: 345-347, 350-353, pl. 1, figs. 1d, 2d, 3d, pl. 4, figs. 2 a-c, pl. 5, figs. 1c-d, f-k (description of female: 345-346, pl. 1, figs. 4 d, pl. 4, figs. 2 d-e, pl. 5, figs. 1 a-b, 1e = *Notodiaptomus* sp.); 1976: 618, fig. 3; Andrade & Brandorff, 1975: 97; Löffler, 1981: 15; Dussart & Defaye, 1983: 139; Dussart, 1984a: (34-35, 38-39, 55, fig.10 = *Notodiaptomus* sp.); Hardy *et al.*, 1984: 530; Robertson & Hardy, 1984: tab. 3; Magalhães *et al.*, 1988: 271; Cicchino & Dussart, 1991: 105, 108; Santos-Silva, 1991: 33, 35, 57-59, 67-68, 76, fig. 13-19, 20, tab 4-5; 1998: 213; Santos-Silva & Robertson, 1993: 95, 100; Cicchino, 1994: 145, fig. 10 (= *Notodiaptomus* sp.); Twombly, 1994: 236, 239, 245; Rocha *et al.*, 1995: tab. 2.

Distribution. BRASIL. **Amazonas:** Lago Calado, near the city of Manacapurú, 03°19'S, 60°35'W (Brandorff, 1973a); Lago Grande de Manacapurú; Lago Cristalino, Rio Negro, near the city of Manaus (present report). **Rondônia:** Lago Boa Viagem near Samuel Reservoir (present report).

Habitat: Lakes.

Comments: All records of this species from Venezuela are incorrect. The female described as *R. calatus* (Brandorff, 1973a) was incorrectly assigned to this species, and belongs to *Notodiaptomus* (Cicchino *et al.*, in press). The male of *R. calatus* has never been found in Venezuela.

Rhacodiaptomus flexipes (Wright, 1927)
(Fig. 8)

Diaptomus flexipes Wright, 1927: 75, 87, 100, 102, pl. 5, figs. 5-12; 1938b: 562; Brehm, 1933a: 284; Thomasson, 1953: 194.

Rhacodiaptomus flexipes n. comb., Kiefer, 1936a: 198; Brehm, 1958a: 165; Brandorff, 1972: 46; 1973a: 341-343, 350-353, pl. 1, figs. 1e, 2e, 3e, 4e, pl. 2, figs. 1 a-g; 1976: 618, fig. 3; Andrade & Brandorff, 1975: 97; Löffler, 1981: 15; Dussart & Defaye, 1983: 139; Robertson & Hardy, 1984: tab. 3; Cicchino & Dussart, 1991: 105; Reid, 1991: 737-738; Santos-Silva & Robertson, 1993: 95; Rocha *et al.*, 1995: tab. 2; Santos-Silva, 1998: 213.

Distribution. BRASIL. **Pará:** Bayou West of Santarém (Wright, 1927); Igarapé Mentai, Lago da Boca (present report).

Habitat: Lake, river, and stream.

Rhacodiaptomus insolitus (Wright, 1927)
(Fig. 8)

Diaptomus insolitus Wright, 1927: 75, 84, 100, 102, pl.4, figs. 1-6; 1938b: 562. Brehm, 1933a: 284.

Rhacodiaptomus insolitus n. comb., Kiefer, 1936a: 198; Brehm, 1958a: 166; Brandorff, 1972: 46 (3, 4, 9, 16-20, figs. 11-18 = *R. retroflexus*); 1973a: 341-343, 350-353, pl. 1, figs. 1a, 2a, 3a, 4a, 5a, pl. 2, figs. 1 a-f; 1973b: 206 (= *R. retroflexus*); 1976: 618, fig. 3; Andrade & Brandorff, 1975: 97; Löffler, 1981: 15; Dussart & Defaye, 1983: 139; Robertson & Hardy, 1984: tab. 3; Cicchino & Dussart, 1991: 105; Santos-Silva & Robertson, 1993: 95, 101; Rocha *et al.*, 1995: tab. 2; Santos-Silva, 1998: 213.

Distribution. BRASIL. **Amazonas:** Lago I, near Balbina Reservoir, Rio Uatumã (this paper). **Pará:** Igarapé Mentai, Lago da Boca (present report). **Rondônia:** small

lake near Calama and Rio Machado/Ji-Paraná (Wright, 1927); lakes Paracuúba, Cururú, and Curumim, Rio Machado/Ji-Paraná and Igarapé do Chico Paiva, all near Calama (present report). **Mato Grosso:** Lago Genipapo, Rio Aripuanã (present report).

Habitat: Lakes, rivers, and stream.

Rhacodiaptomus retroflexus Brandorff, 1973
(Fig. 8)

Rhacodiaptomus retroflexus Brandorff, 1973a: 348-353, pl. 1, figs. 1b, 2b, 3b, 4b, pl. 5, figs. 2a-c, pl. 6, figs. 1a-o; 1976: 618, fig. 3; Andrade & Brandorff, 1975: 97; Löffler, 1981: 15; Brandorff *et al.*, 1982: 76, tab. 4; Dussart & Defaye, 1983: 139; Hardy *et al.*, 1984: 530; Robertson & Hardy, 1984: 347, tab. 3; Arcifa, 1984: 143, tab. 7; Matsumura-Tundisi, 1986: 547, 551, figs. 95-99; Magalhães *et al.*, 1988: 271; Cicchino & Dussart, 1991: 105; Santos-Silva & Robertson, 1993: 95, 101; Rocha *et al.*, 1995: tab. 2; Santos-Silva, 1998: 213.

Rhacodiaptomus cf. retroflexus; Bozelli, 1992: 254, 257, tab. 6.

Distribution. **BRASIL. Amazonas:** Lago Janauarí, Rio Negro, near Manaus 03°14'S, 60°01'W; Rio Negro, near Manaus, 03°07'S, 60°03'W; Rio Maués-Mirim, mouth, 03°20'S, 57°41'W (Brandorff, 1973a); Lago Cristalino, Rio Negro, near Manaus, 03°06'S, 60°13'W; Lago Baixote, Rio Negro, near Manaus, 02°57'S, 60°28'W; Rio Tarumã-Mirim 03°01'S, 60°11'W; Lago Tupé, Rio Negro, near Manaus (present report). **Pará:** Lago da Terra Santa, 02°08'S, 56°28'W; Rio Maracanã, 02°10'S, 56°36'W; Rio Daquiri, 02°08'S, 56°44'W (Brandorff *et al.*, 1982); Lago Mureta, Rio Tapajós, near the village of Alter-do-Chão; Rio Tapajós, Pindobal (present report); Rio Trombetas; Lago Batata, Rio Trombetas, 01°30'S, 56°20'W; Lago Mussurá, Rio Trombetas, 01°15'S, 56°20'W (Bozelli, 1992).

Habitat: Rivers and lakes, mostly black and clear waters.

Genus *Scolodiaptomus* Reid, 1987

This genus was erected by Reid (1987) for a species long assigned to the genus-group *Diaptomus* s. l., "*Diaptomus*" *corderoi* Wright, 1936. Wright (1936a) furnished a brief description, and apparently did not deposit specimens. Topotypes (Lagoa Santa, near Belo Horizonte, state of Minas Gerais, Brasil) have been deposited at National Museum of Natural History, Smithsonian Institution, Washington, DC (U.S.A.) and at the Museu de Zoologia da Universidade de São Paulo, São Paulo, Brasil (Reid, 1987). Reid (1987) rejected the proposition of Kiefer (1956) and Dussart (1984a, 1985a) to allocate this species to the genus *Notodiaptomus*. For more detailed accounts of the historical background, distribution, and ecological requirements of this species see Reid (1987) and Reid & Pinto-Coelho (1994).

Scolodiaptomus corderoi (Wright, 1936)
(Fig. 9)

Diaptomus corderoi Wright, 1936a: 82, pl. 1, figs. 3-5; 1938b: 563; Kleerekoper, 1944: 43; Brandorff, 1972: 48; Cipólli, 1973: 567-612, pls. 1-12; Gouvêa, 1980: 1047, 1050, 1051, 1058, 1059; Okano, 1980: 52-56, 59, 62-80, 143-155, fig. 9, tab. 3, sch. 1; Tundisi & Matsumura-Tundisi, 1981: 206; Sendacz & Kubo, 1982: 54, 58, 61, figs. 15-19, tab. 3; 1999: 517, 526; Arcifa, 1984: 138-140, 143, tabs. 2, 3, 7; Sendacz, 1984: 125, 126; Sendacz *et al.*, 1984: 1629; 1985: 190, 193, 196, 199, 201, 203, 205, 207, tabs. 4, 6, 8, 10, 12; Freire & Pinto-Coelho, 1986: 923, 926, tab. 1; Reid, 1991: 740; Jersabek *et al.*, 1996: 2028, 2030, 2059; Fukuhara *et al.*, 1997: 351; Pinto-Coelho *et al.*, 1999: 562, 563; "*Diaptomus*" *corderoi*; Brandorff, 1976: 618, fig. 3;

- Löffler, 1981: 15; Matsumura-Tundisi & Okano, 1983: 35, 37, 38; Matsumura-Tundisi, 1985: 130-132, 137, fig. 2; 1986: 547, 548, 551, 552, figs. 86-88; Matsumura-Tundisi & Tundisi, 1986: 36-39, tabs. 1, 2; Matsumura-Tundisi *et al.*, 1997: 283, tab. 4; 1997: 384, tab.4.
- Diaptomus* s. l. *corderoi*; Reid *et al.*, 1988: 527-528, 531, 533, 535-537, fig. 2; Pinto-Coelho *et al.*, 1988: 605-620.
- Diaptomus* sp.; Barbosa *et al.*, 1984: 403.
- Notodiaptomus corderoi* n. comb., Kiefer, 1956: 242; Brehm, 1958a: 147; Dussart & Defaye, 1983: 137, 138; Dussart, 1984a: 64.
- Notodiaptomus (Notodiaptomus) corderoi*; Dussart, 1985a: 208.
- Scolodiaptomus corderoi* n. comb., Reid, 1987: 364-372, 378, figs. 32-59; 1990: 141, 146; 1991: 740, tab. 3; Dabés *et al.*, 1990: 186-188, tab. 7; Reid & Moreno, 1990: 734; Rolla *et al.*, 1992: 149, 156, tab. 5; Reid & Pinto-Coelho, 1994: 93, 95, 98, 99, 100-102; Tundisi & Matsumura-Tundisi, 1994: 25; 1995a: 252; Dussart & Defaye, 1995: 173, L69; Matsumura-Tundisi & Tundisi, 1995: 252; Rocha *et al.*, 1995: 157; Matsumura-Tundisi, 1997: 266-268, fig. 2; Matsumura-Tundisi *et al.*, 1997: 275-277, 279, 280, 282, 283, tabs. 2, 4; Rocha & Matsumura-Tundisi, 1997: 286, 291, 294, tab. 10; Matsumura-Tundisi *et al.*, 1997: 300-304, 306, fig. 5; Santos-Silva, 1998: 214.
- Scolodiaptomus corderoi*; Rolla *et al.*, 1990: 241, tab. 6. [error]
- Scaladiaptomus corderoi*; Rocha & Matsumura-Tundisi, 1997: 291, 292, tabs. 6, 7. [error]
- Scoladiaptomus corderoi*; Rocha & Matsumura-Tundisi, 1997: 293, tab. 8. [error]
- "*Scolodiaptomus*" *corderoi*; Matsumura-Tundisi *et al.*, 1997: 387.
- Tundisi, 1985; Matsumura-Tundisi, 1997; Matsumura-Tundisi *et al.*, 1997 (373-390); 1997 (297-307); 1997 (275-284); Rocha & Matsumura-Tundisi, 1997; Fukuhara *et al.*, 1997); Pampulha and Vargem das Flores reservoirs, Lagoa Sumidouro (Reid *et al.*, 1988); Furnas Reservoir, at Rio Turvo bridge and Porto Fernandes, Pontal Reservoir (Reid & Pinto-Coelho, 1994); Pontal Reservoir, Itabira (Dabés *et al.*, 1990); Volta Grande Reservoir (Rolla *et al.*, 1990; Giani *et al.*, 1986); Rio Grande, 19°45'-20°15'S and 47°15'W (Rolla *et al.*, 1992); Lagoa da Pampulha (19°55'09"S and 43°56'47"W), Belo Horizonte (Pinto-Coelho *et al.*, 1999). **São Paulo:** Artificial lake on the campus of the University of São Paulo, Cidade Universitária (Cipólli, 1973); Rio Tietê basin, Guarapiranga, Parque Ecológico, Águas Claras and Juqueri reservoirs (Sendacz & Kubo, 1982; Sendacz *et al.*, 1985); Jaguari, Paraibuna, Paraitinga, and Taiaçupeba reservoirs (Arcifa, 1984); Itupeva Reservoir, Rio Paraíba do Sul basin (Sendacz *et al.*, 1985); Barra Bonita Reservoir, Rio Tietê (Matsumura-Tundisi, 1986); Billings Reservoir (Sendacz, 1984; Sendacz & Kubo, 1999); Rio Grande Reservoir (Sendacz *et al.*, 1984). **Paraná:** Itaipu Reservoir (Matsumura-Tundisi, 1986).

Habitat: Lakes, reservoirs.

FAMILY PSEUDODIAPTOMIDAE

This family of demersal copepods, erected by Sars (1903), is circumglobal in tropical and temperate shallow coastal waters (Walter, 1989). Only four native species in one genus (*Pseudodiaptomus*) occur in Brasil.

Genus *Pseudodiaptomus* Herrick, 1884

The genus was established by Herrick (1884) when he described *P. pelagicus* from specimens collected in brackish waters near the mouth of the

Distribution. BRASIL. **Minas Gerais:** Lagoa Santa, about 50 km north of Belo Horizonte (Wright, 1936a); Lago Dom Helvécio, 19°10'S, 42°01'W (Matsumura-Tundisi & Okano, 1983; Okano, 1980; Matsumura-

Mississippi River. This is the type-species of the genus, but unfortunately no material was deposited and the description was not completely accurate. Until Walter's New World revision (1989), 71 species were reported worldwide (Walter, 1986a,b, 1987), 14 species were recorded from American waters, and 4 species from Brasil.

Dahl (1894) described three species (*P. gracilis*, *P. richardi*, and *P. acutus*) from waters near Belém, state of Pará, but he assigned them to the genus *Weismannella* Dahl, 1894.

Tollinger (1911) presented the known world distribution of the genus. The first revision of the South American *Pseudodiaptomus* species was by Wright (1936b). He described a new species, *Pseudodiaptomus marshi*, from the estuary of Rio Capibaribe at Recife, state of Pernambuco. On that occasion Wright also reviewed the known distribution of the species. Walter (1989) revised the New World species of *Pseudodiaptomus* with a key to the species, including four species occurring in Brasil.

In 1991, the species *Pseudodiaptomus triahamatus* Wright, 1937 was collected from aquaculture ponds in the estuary of the Potengi River, Natal, state of Rio Grande do Norte. This was the first record of the species in the Atlantic (Medeiros *et al.*, 1991). This species was previously known to occur only in the Indo-Pacific region (Walter, 1984; 1986b). Probably the species was introduced accidentally with the prawn *Penaeus monodon* Fabricius, imported from the Philippines in 1987 for aquaculture.

Representatives of this genus have been found in salt, brackish, and fresh waters. In the present article the main concern is with Brazilian species, and useful references are the articles of Dahl (1894), Wright (1936b), Walter (1986a,b, 1987, 1989), and Montú & Gloeden (1998). The works of Tollinger (1911), Burckhardt (1913), Marsh (1933), Brehm (1934), Wright (1936b), Dussart & Defaye (1983; 1995), and Walter (1986a,b, 1987, 1989) provide more extensive information about this family worldwide.

Pseudodiaptomus acutus (Dahl, 1894)

(Fig. 10)

Weismannella acuta Dahl, 1894: 10-11, pl. 1, figs. 9-11.

Schmackeria acutus n. comb., Poppe & Mrázek, 1895: 127.

Pseudodiaptomus acutus n. comb., Giesbrecht & Schmeil, 1898: 64; Tollinger, 1911: 174, 268-9, fig. L; Marsh, 1933: 30, pl. 15, figs. 1, 2, 4; Wright, 1928: 588; 1936b: 10-13, pl. 2, figs. 5-6, pl. 3, fig. 8; 1937b: 159-161, pl. 1, fig. 4; Carvalho, 1945: 95-96, pl. 8, fig. 7a-c; 1952: 146, pl. 1, figs. 20-24; Björnberg, 1963: 45; 1968: 76-88, figs. 15-19; 1981: 646, fig. 214(4); Gaudy, 1963: 25; Cervigón & Marcato, 1967: 268, tabs. 7, 10; Bowman, 1978: 249-252, figs. 1-2; Montú, 1980: 57, tab. 1; Campaner, 1981: 281; 1985: 10; Paranaguá, 1982: 90; Dussart & Defaye, 1983: 29-30; Jacoby & Youngbluth, 1983: 77, 79-85, figs. 1A, 2A, D, tabs. 1-3; Almeida Prado Por & Lansac-Tôha, 1984: 148, 149, tab. 1; Montú & Gloeden, 1986: 79, fig. 24a-c; 1998: 185; Valentin *et al.*, 1987: 1202; Walter, 1989: 615-618, 623, 624, figs. 14A-H, 15A-B, 18; Araújo *et al.*, 1990: 283; Bonecker *et al.*, 1990: 384; Vega-Pérez, 1993: 67; Valentin, 1994: 30; Neumann-Leitão & Matsumura-Tundisi, 1998: 1985; Mauchline, 1998: 26, 115, 307, 345, 508; Bohrer & Araújo, 1999: 93, 97; Pereira & Loureiro Fernandes, 2000: 85, 87, tab. 1.

Distribution. BRASIL. **Pará:** Brackish water at the mouth of Rio do Pará (Dahl, 1894); Marajó Bay, Cabo Maguari (Walter, 1989). **Maranhão:** Baía de São Marco and São Luiz (Wright, 1936b). **Paraíba:** estuary of Rio Paraíba, at Cabedelo (Wright, 1936b). **Pernambuco:** estuary of Rio Capibaribe at Recife (Wright, 1936b); Suape coastal estuarine complex (08°15'-08°30'S, 34°55'-35°05'W), 40 km south of Recife (Neumann-Leitão & Matsumura-Tundisi, 1998). **Sergipe:** Piauí River (Walter, 1989). **Espírito Santo:** Lagoon on the campus of the Universidade Federal do Espírito Santo, Vitória (Pereira & Loureiro Fernandes, 2000). **Rio de**

Janeiro: Baía de Guanabara (Wright, 1936b). **São Paulo:** estuaries near Santos (Wright, 1936b). **Rio Grande do Sul:** Estuary of Lagoa dos Patos (Bohrer & Araújo, 1999). JAMAICA. St. Catherine Parish (Walter, 1989). VENEZUELA. Coche Island (Walter, 1989). SURINAME. 06°09.2'N, 54°21.5'W (Walter, 1989).

Habitat: Brackish estuarine, and coastal waters.

Comments: Walter (1989) extended the range of this species to the Caribbean Island arc with a record from Jamaica, and from Suriname and Venezuela to southern Brasil. Wright (1936b) commented that this species was reported occurring in rather high salinity locations, and apparently it does not live in the open ocean or in water of very low salinity.

Pseudodiaptomus gracilis (Dahl, 1894)
(Fig. 10)

Weismannella gracilis Dahl, 1894: 10-11, pl. 1, figs. 12-14.

Schmackeria gracilis n. comb., Poppe & Mrázek, 1895: 127.

Pseudodiaptomus gracilis n. comb., Giesbrecht & Schmeil, 1898: 65; Stingelin, 1904: 588; Tollinger, 1911: 176, 268-9, fig. N; Wright, 1928: 589-592, text figs. 1-2, pl. 12, fig. 4; 1936b: 3-6, pl. 1, figs. 1-8; Marsh, 1933: 35-36, pl. 18, figs. 4-6; Brehm, 1934: 93; Cipólli & Carvalho, 1973: 97-98, 100; Björnberg, 1981: 645-646, fig. 216 (2); Dussart & Defaye, 1983: 30; Dussart, 1984a: 27, 43, fig. 2; Almeida Prado Por & Lansac-Tôha, 1984: 148, 149, tab. 1; Walter, 1989: 610-12, 623, 624, figs. 11A-I, 18; Mauchline, 1998: 116; Montú & Gloeden, 1998: 185.

Distribution: BRASIL. **Pará:** Marajó Bay, at the mouth of Rio Tocantins, in fresh or nearly fresh water (Dahl, 1894); brackish water in Furo Santa Isabel, Marajó Island (Stingelin, 1904); fresh water in Lago Arary and Rio Arama, Marajó; bayou west of Santarém, where

the Rio Tapajós joins the Amazon (Wright, 1928); several sites between the mainland at Belém and Marajó Island (Rio do Pará); up Rio Tocantins as far as Cametá; Rio and Lago Arary, Marajó (Wright, 1936b); Marajó Bay, Rio Guamá; Capim River; Belém Harbor, 01°27.8'S, 48°29.2'W (Walter, 1989). VENEZUELA. **Monagas:** Caño lateral, Río Orinoco at Barrancas (Dussart, 1984a).

Habitat: Brackish estuarine waters, rivers, and freshwater lakes.

Comments: Santarém, where Wright (1928) reported this species, is very far from the coast, with no influence of salinity from seawater. Walter (1989) observed that this species is typically found in low to very low saline inland waters, though after heavy rains it might be flushed seaward. Before Dussart (1984a) found it at Barrancas, all reports indicated that this species was endemic to the Brazilian Amazon region.

Pseudodiaptomus marshi Wright, 1936
(Fig. 10)

Pseudodiaptomus marshi Wright, 1936b: 13-15, pl. 3, figs. 1-5, 7; 1937b: 159-161, pl. 1, figs. 6-7; Bacon, 1971: 85, tab. 2; Björnberg, 1981: 645-646, fig. 216(3); Dussart & Defaye, 1983: 33; Dussart, 1984a: 63; Dussart & Fernando, 1985: 39-41, figs. 1-9; Almeida Prado Por & Lansac-Tôha, 1984: 148; Walter, 1989: 604-606, 623, 624, figs. 8A-J, 18; Neumann-Leitão & Matsumura-Tundisi, 1998: 1985; Mauchline, 1998: 116; Montú & Gloeden, 1998: 185; Pereira & Loureiro Fernandes, 2000: 85, 87, tab. 1.

Pseudodiaptomus culebrensis Collado *et al.*, 1984: 116, tab. 3.

Distribution: BRASIL. **Maranhão:** Baía de São Marco at São Luiz (Wright, 1936b). **Ceará:** estuary of Rio Jaguaribe at Aracati (Wright, 1936b). **Pernambuco:**

estuary of Rio Capibaribe at Recife (Wright, 1936b); Suape coastal estuarine complex (08°15'-08°30'S, 34°55'-35°05'W), 40 km south of Recife (Neumann-Leitão & Matsumura-Tundisi, 1998). **Sergipe**: Pomonga River (Walter, 1989). **Espírito Santo**: Lagoon in the campus of the Universidade Federal do Espírito Santo, Vitória (Pereira & Loureiro Fernandes, 2000). **BELIZE**: Southern Lagoon, 17°13.2'N, 88°15.5'W (Walter, 1989). **COSTA RICA**: Limon (Walter, 1989). **TRINIDAD**: Caroni Swamp (Walter, 1989).

Habitat: Brackish estuarine waters, lagoons, swamps and rivers.

Comments: This species is restricted to the Atlantic coast of Central and South America (Walter, 1989). Wright (1936b) noted that it was most abundant at low tide, with reduced salinity. It has not been taken in nearly pure seawater at high tide, nor has it been found in fresh water.

Pseudodiaptomus richardi Dahl, 1894
(Fig. 10)

Weismanella richardi Dahl, 1894: 20, pl. 1, figs. 6-8.

Schmackeria richardi n. comb., Poppe & Mrázek, 1895: 127.

Pseudodiaptomus richardi n. comb., Giesbrecht & Schmeil, 1898: 64; Mrázek, 1901: 14, pl. 1, fig. 14, pl. 2, fig. 39; Tollinger, 1911: 174, 268-9, fig. M; Pesta, 1927: 71, fig. 2b-d; Marsh, 1933: 39, pl. 20, figs. 1, 3; Brehm, 1965: 3, 8, 12; Wright, 1928: 588; 1936b: 6-10, pl. 1, fig. 9, pl. 2, figs. 1-3; 1937b: 159-161, pl. 1, fig. 5; Carvalho, 1945: 96, pl. 8, fig. 8; Björnberg, 1963: 46; 1981: 645, fig. 216(1); Owre & Foyo, 1967: tab. 6; Cipólli & Carvalho, 1973: 100; Montú, 1980: 57, 60, tabs. 1-3; Dussart & Defaye, 1983: 30; Almeida Prado Por & Lansac-Tôha, 1984: 148-149, tab. 1; Reid & Esteves, 1984: 310, 311, 315, 317, tab. 2; Dussart, 1984a: 63; Montú & Gloeden, 1986: 77, fig. 24d-h; 1998: 186; Walter,

1989: 618-21, 623, 624, figs. 16A-I, 18; Gaeta, 1994: 96; Mauchline, 1998: 116; Bohrer & Araújo, 1999: 93, 96, 97, figs. 8-10; Pereira & Loureiro Fernandes, 2000: 85, 87, tab. 1.

Pseudodiaptomus richardi inaequalis Brian, 1926: 187-188, figs. 15-16; Ringuelet, 1958a: 56; Cicchino, 1975: 37-49, figs. 1-63; Battistoni, 1995: 955, 959, fig. 5.

Pseudodiaptomus richardi emancipans Brehm, 1957: 53-58, figs. 64-66.

Pseudodiaptomus cristobalensis Carvalho, 1952: 146-147, pl. 1, fig. 22 (not figs. 25-27).

Distribution. **BRASIL. Pará**: Fresh and brackish water in Rio do Pará, near Belém (Dahl, 1894; Wright, 1936b); Marajó Bay, Belém; Bujaru, Rio Guama (Walter, 1989).

Rio Grande do Norte: brackish water in Lagoa Papary (Wright, 1936b). **Pernambuco**: estuary of Rio Capibaribe, at Recife and in a tidal inlet a few km south of Recife (Wright, 1936b). **Sergipe**: Sergipe River and Piauí River (Walter, 1989). **Espírito Santo**: Lagoon in the campus of the Universidade Federal do Espírito Santo, Vitória (Pereira & Loureiro Fernandes, 2000).

Rio de Janeiro: Lagoa Iodada (Coca-Cola), 22°13'S, 41°33'W (Walter, 1989); coastal lagoons Paulistinha and Paulista (Reid & Esteves, 1984). **São Paulo**: estuaries at Santos (Wright, 1936b); Una do Prelado River and Juréia (Walter, 1989). **Santa Catarina**: Santa Catarina Island and Lagoa da Conceição (Walter, 1989).

Rio Grande do Sul: Lagoa dos Patos (Walter, 1989; Montú & Gloeden, 1986; Bohrer & Araújo, 1999). **ARGENTINA. Buenos Aires**: Río de La Plata (Mrázek, 1901); Tigre (Brian, 1926); Abra Nueva in Paraná delta near Tigre (Pesta, 1927); Punta Lara, Río de La Plata and Río Santiago (Ringuelet, 1958a). **Capital Federal**: Río Riachuelo at la Boca (Brian, 1926); Riachuelo and Capital Federal, without additional indications (Ringuelet, 1958a); dyke N° 4 in Buenos Aires port (Brehm, 1957).

Habitat: Brackish estuarine waters, lagoons, rivers.

Comments: The range of this species, according to Walter (1989), extends from Belém, state of Pará in northern Brasil, south to the Río de La Plata, Buenos Aires Province, Argentina.

FAMILY CENTROPAGIDAE

Members of this family created by Giesbrecht (1892) occur in both fresh and saline athalassic waters, and most are restricted to the Southern Hemisphere. Bayly (1992a) revised and fused the two genera occurring in Brasil, *Boeckella* and *Pseudoboeckella*. Bayly (1992b) also published a guide dealing with the non-marine Centropagidae of the world, which is the group treated in this paper, referring only to the two species recorded from Brasil. The first species described from South America was *Boeckella brasiliensis*, originally as *Diaptomus brasiliensis* Lubbock, 1855.

Bayly (1992b) noted that the families Centropagidae and Diaptomidae have almost mutually exclusive distributions. In South America, the centropagids occur in the southern and high-altitude parts of the continent. The diaptomids occur in most of the remaining areas. Bayly noted that although there is usually a rather sharp line of demarcation between the distribution of these families, there are at least two exceptions: one in Australia (Timms & Morton, 1988, fig. 2), and the other in South America, where there is an overlap in Argentina between the Negro and Plate rivers (Wright, 1938b, fig. 1; Brandorff, 1976, fig. 4). There are several additional distributional irregularities. *Boeckella triarticulata* (Thomson) (synonym *B. orientalis* Sars) occurs in diaptomid territory in eastern Mongolia (Sars, 1903; Rylov, 1933; Kiefer, 1937). *Diaptomus diabolicus* Brehm (1935) occurs in centropagid territory in Chile (Wright, 1938b, fig. 1; Zúñiga, 1975; Brandorff, 1976, fig. 3). Gloeden (1994) found *Boeckella bergi* Richard, 1897 in Lagoa Mirim, state of Rio Grande do Sul, Brasil. This was the first record of a centropagid in Brasil. Later, Gloeden (1997)

collected *Pseudoboeckella poppei* Mrázek, 1901 (= *Boeckella poppei* Mrázek, 1901; see Bayly, 1992a for explanations) from a temporary freshwater pond, also in Rio Grande do Sul. These northernmost records of this family in Brasil extend the areas of overlapping distribution of the Diaptomidae and Centropagidae (see Wright, 1927, 1937b; Löffler, 1958; Bayly, 1992a,b;). Until these records, the diaptomids were found exclusively north of Buenos Aires, and centropagids south of it. Only the two species of Centropagidae occurring in Brasil are presented here (Fig. 10).

Genus *Boeckella* De Guerne & Richard, 1889

The synonymy of this genus follows Bayly (1992a,b), where further information can be found.

Boeckia Thomson, 1883: 93-94.

Boeckella De Guerne & Richard, 1889: 151-152; Sars, 1894: 48-49; Ekman, 1905b: 601-602; Jolly, 1957: 856; Ringuelet, 1958a: 58; Bayly, 1964: 185; Bayly & Arnott, 1969: 194; Bayly, 1992a; Dussart & Defaye, 1995: 80, 105, fig. L8.

Pseudoboeckella Mrázek, 1901: 5; Ekman, 1905b: 599-601; Ringuelet, 1958a: 58; Dussart & Defaye, 1995: 81, 105, fig. L10.

Boeckellopsis Mrázek, 1901: 6-7.

Paraboeckella Mrázek, 1901: 8.

Boeckellina Mrázek, 1901: 11.

Pseudoboeckella Daday, 1902: 218. (Originally in a sense synonymous with that of *Boeckella* De Guerne & Richard, not with that of *Pseudoboeckella* Mrázek.)

Boeckella Daday, 1902: 234. (Originally in a sense synonymous with that of *Pseudoboeckella* Mrázek, not with that of *Boeckella* De Guerne & Richard.)

Metaboeckella Ekman, 1905b: 603.

Boeckella bergi Richard, 1897
(Fig. 10)

Boeckella bergi Richard, 1897b: 321-5, fig. 2; Giesbrecht & Schmeil, 1898: 61; Sars, 1901: 6-10, pl. I, figs. 1-15; Ekman, 1905b: 602; Tollinger, 1911: 170, fig. G; Marsh, 1924: 4-5, fig. 2; Brian, 1926: 188, figs. 17-18; Pesta, 1927: 71, fig. 2a; Brehm, 1935b: 298-300, 304-5; 1936: 485-6; Olivier, 1955: tab. 2 [ad. p. 299]; Ringuelet, 1958a: 66; Dussart & Defaye, 1983: 14; Paggi & José de Paggi, 1990: 690, 692, tab. 2; Bayly, 1992a: 31, fig. 8a-e; Gloeden, 1994: 123; Battistoni, 1995: 958; Menu-Marque *et al.*, 2000: 265, 269, fig. 21.

Boeckellopsis bergi n. comb., Mrázek, 1901: 7-8.

Pseudoboeckella bergi n. comb., Daday, 1902: 220-224, tab. 4, figs. 6-19.

Boeckella bergi var. *serrifera* Brehm, 1937b: 301-303.

Boeckella bergi var. *cornuta* Brehm, 1937b: 303-304.

Boeckella bergi conesae Brehm, 1954: 38-40, figs. 4-8; Ringuelet, 1958a: 64, 68-69.

Boeckella bergi bergi Ringuelet, 1958a: 64, 66-67.

Distribution. **BRASIL. Rio Grande do Sul:** Lagoa Mirim (32°20.7'S, 52°47.8'W) (Gloeden, 1994). **ARGENTINA.** Middle Paraná River (Paggi & José de Paggi, 1990). **Buenos Aires:** La Segovia lagoon, 8 km from Puám; lower Sauce Grande stream; El Salado stream; Mapis stream; El Carnero lagoon; Saladillo stream, Atucha; Monte lagoon; Chascomus (charca); Colonel Brandzen; Melchor Romero (charca); Charca near Del Gato stream (Ringuelet, 1958a); Adrogué (Richard, 1897b); Abra Nueva in the Paraná delta near Tigre (Pesta, 1927). **Capital Federal:** (Mrázek, 1901); Riachuelo River at La Boca, and artificial lake (Brian, 1926); General Conesa (Brehm, 1954). **Santa Cruz:** charca, Santa Cruz River (50°11'55"S and 71°38'29"W (Daday, 1902). **Santa Fé:** Crespo (Ringuelet, 1958a). Argentina, locality not specified (Sars, 1901). **URUGUAY. Montevideo:** several biotopes in this Department (Brehm, 1935b).

Habitat: Lagoons, rivers, streams, swamps and artificial lakes.

Comments: Menu-Marque *et al.* (2000) described the known distribution of this species. They verified that southeastern Brasil is the easternmost locality known for the genus in South America.

Boeckella poppei (Mrázek, 1901)

(Fig. 10)

Boeckella brasiliensis (Lubbock); Poppe & Mrázek, 1895: 135-138, figs. 1-11; Giesbrecht & Schmeil, 1898: 60-61, fig. 14; Daday, 1902: (in part, pl. vii, fig. 6).

Pseudoboeckella poppei Mrázek, 1901: 6; Ekman, 1905b: 600; Tollinger, 1911: 159, fig. R; Scott, 1914: 3-4, pl. i, fig. 9; Marsh, 1924: 22-23, fig. 31; Kiefer, 1928a: 216, 218, figs. 1-3; Pesta, 1928a: 77; Brehm, 1936: 484; Harding, 1941: 320; Ringuelet, 1955: 444; 1958a: 76, 82-3; Pezzani-Hernández, 1975: 28-44, figs. 2-3, tab. 1-3; Heywood, 1977; Dussart & Defaye, 1983: 21; Paggi: 1983: 1-34, figs. 2-66; 1987: 15, 17-21; Battistoni, 1995: 958; Gloeden, 1997: 173.

Boeckella dubia Daday, 1901: 345.

Boeckella entzii Daday, 1901: 345-346; 1902: 239-243, pl. vi, figs. 3-9.

Boeckella poppei n. comb., Daday, 1902: 234-236; Bayly, 1992a: 33-34, fig. 9a-j; Bayly, 1995: 1111, 1114, tab. 2.

Boeckella entzi Ekman, 1905a: 15-16, fig. 6; 1905b: 600.

Pseudoboeckella poppei (Daday); Sars, 1909: 22-29, pl. iii, figs. 1-16; Brehm, 1956a: 87-89, figs. 49-57; Weller, 1977.

Pseudoboeckella entzi (Daday); Ortmann, 1911: 639; Brehm, 1936: 484.

Pseudoboeckella silvestri Daday; Goodman, 1969; Heywood, 1970a, b, 1972 (misidentifications of *B. poppei*).

?*Pseudoboeckella klutei* Brehm, 1926: 310-312, fig. 2; 1936: 484.

Non *Diaptomus brasiliensis* Lubbock, 1855: 237-240, figs. 3-8.

Non *Boeckella brasiliensis* (Lubbock); Daday, 1902:

(in part., pl. vii, figs. 1-5).

Boeckella (Pseudoboeckella) poppei; Menu-Marque *et al.*, 2000: 264.

Distribution. **BRASIL. Rio Grande do Sul:** Lagoa Mirim (32°20.7'S, 52°47.8'W) (Gloeden, 1997). **ARGENTINA. Neuquén:** Los Juncos near Las Bayas (40°27'50"S, 70°39'W) (Brehm, 1926). **Río Negro:** small lagoon in Bariloche (Brehm, 1956a). **Santa Cruz:** lagoon 35 km north of Coyle (Brehm, 1956a); El Zurdo and Las Horquetas, at the Chilean border; Los Pozos, a small lagoon near Cardiel Lake in Gallegos Norte (Bayly, 1992a). **CHILE:** Torres del Paine National Park (ca. 51°S, 73°W), ponds 1, 2; L. Tehuelches Este; L. Redonda; L. Larga (Bayly, 1992a). **SOUTH GEORGIA.** Small lake near whaling station in Cumberland Bay (Pope & Mrázek, 1895; Sars, 1909); pond in the vicinity of Elephant Lake near Lyell Glacier (Kiefer, 1928); pond near the Cumberland Bay area (Ekman, 1905a; 1905b); small lakes in Borestal, Morrena in the Cumberland Bay area; Station 1589 of British Graham Land Expedition (Harding, 1941); whaling station area of Grytviken; spring lake on the road from Grytviken to Maiviken (Pesta, 1928a,b); spring lakes in the vicinity of Grytviken; pond in tussock grass near the sea (Pesta, 1928a,b). **FALKLAND ISLANDS (MALVINAS).** Pond west of Port Stanley (Ekman, 1905a,b); freshwater biotope of Hill Cove (Scott, 1914). **SIGNY ISLAND, SOUTH ORKNEY ISLANDS (60°43'S, 45°37'W)** (Bayly, 1992a). **ANTARCTIC:** Deception Island, south of Argentine camp, South Shetlands area (Ringuelet, 1958a); Boeckella Lake, near Hope Bay, Esperanza on the Antarctic peninsula, Graham Land (Ekman, 1905); Horseshoe Bay in Graham Land (Harding, 1941); Beaver Lake (Bayly, 1995).

Habitat: Lagoons, lakes, ponds.

Comments: Bayly (1992a: 33) discussed the synonymy of this species. Menu-Marque *et al.* (2000) commented that this "is the only species found on the Antarctic continent; it is distributed in Circumantarctic islands

of western longitude, Tierra del Fuego, the Patagonian plateau, advancing northward along some Andean lakes, with northernmost record about 31°S, on a plateau containing relict Patagonian biota (Cei, 1972)."

FINAL REMARKS AND RECOMMENDATIONS

Nowadays there is a general agreement that biodiversity is threatened, that conservation actions are urgent and necessary and other fashionable concepts and words, but do we know the diversity that we want to conserve? Conservation measures suppose that we know what we want to conserve. If we want to conserve, evaluate and manage biodiversity, this implies that the species involved, their distribution, their habitats, their ecology, and mainly their identity should be known reasonably well. The pivotal step toward conservation of biodiversity is to be able to identify unambiguously all species existing within a given area.

To give names to objects and living things is necessary, because it allows humans to achieve a better degree of communication. This explains why all things that play a role in their lives have been given names. If we wish to have an efficient biological nomenclature, each single species must have a name shared with no other species. At first this seems very simple, and this is part of what so-called systematists are supposed to do. In reality, this task is far from being as simple as it appears. Those who deal with this matter have a good and sometimes not pleasant knowledge of all the problems involved in this activity.

Examining the literature available on South American calanoid systematics, it seems that most of the contributions have not been the result of work by systematists, but from others without formal training in systematics. Systematics is unfashionable, and it appears that many funding agencies, though claiming to support biodiversity conservation, routinely reject proposals with taxonomic content. Systematists are much closer to extinction than the majority of biologists

may realize. Systematics is no longer part of the biology curriculum of most universities, and where it still is a part, it is most often taught by people with little or no personal experience in systematic research. The lack of training and knowledge of some of those presently called taxonomists has resulted in a quite chaotic situation, leading to many mistakes which are repeated again and again in the scientific as well as the non-scientific literature.

It is beyond the scope of this work to initiate a discussion about species concepts, but as the species remain the cornerstone of this entire discussion, the subject cannot be completely avoided. There is an urgent need to begin that as soon as possible, because the use of different species concepts influences our perception of diversity and some of the implications for conservation.

“Basic systematics data are important because they allow communication and exchange of information between scientists. Basic systematics data are important for conservation. Without detailed surveys and accurate taxonomy, it is impossible to identify the various species and evaluate their real conservation status, it is impossible to properly manage them, it is impossible to evaluate the conservation value of habitats or areas, it is impossible to establish strategies and it is impossible to set priorities. Without accurate names, it is impossible to list a species as endangered or threatened and also to take conservation action” (Kottelat, 1998).

There are many types of nomenclatural problems. The older descriptions were made at a time without precise nomenclatural rules. For several names there is no type material, and for others the whereabouts of designated types are unknown. Additionally some species have been described recently without explicit mention of type material, and the actual existence of this material in most cases is still unclear. Type material, the standard of stable nomenclature, is of essential importance. Also in ecological work, voucher material should be deposited in order to guarantee the accuracy of the records reported, and also to allow further

studies and taxonomic certification if necessary. A huge amount of money has been spent in sampling expeditions, and throwing this material away is a waste of time and money. This material should be made available and indication of where it is deposited should be a condition for publication of any related papers.

Nowadays it is necessary to store all the information from initiatives such as workshops, symposia, conferences, etc., as well as data from natural history collections. The use of databases is becoming more widespread in the scientific community, has proved to be a very useful tool to store and retrieve data, and should be considered, supported, and stimulated in the future.

REFERENCES

- Almeida Prado Por, M.S. & F.A. Lansac-Tôha, 1984. The distribution of brackish water Calanoida (Copepoda) along the coasts of Brasil. **Hydrobiologia** 113: 147-150.
- Andrade, E.R. & G.-O. Brandorff, 1975. Uma nova espécie de Diaptomidae (Crustacea, Copepoda) “*Diaptomus negrensis* das águas pretas perto de Manaus. **Acta Amazonica** 5: 97-103.
- Araújo, H.M.P., R.A. Dória, M.H.S.G. Rezende & M.L.S.O. Leal, 1990. Copepoda das águas da plataforma continental do Estado de Sergipe. **Anais do IV Encontro Brasileiro de Plâncton, Recife**: 283-291.
- Arcifa, M.S., 1984. Zooplankton composition of ten reservoirs in southern Brasil. **Hydrobiologia** 113: 137-145.
- Bachion, M.A. & L.H. Sipaúba-Tavares, 1992. Estudo da composição das comunidades fitoplanctônica e zooplanctônica em dois viveiros de camarão. **Acta Limnologica Brasiliensia** 4: 371-393.
- Bacon, P.R., 1971. Plankton studies in a Caribbean estuarine environment. **Caribbean Journal of Science** 11: 81-89.
- Barbosa, F.A.R., M.E. Coutinho, L.M. de Araújo, R.M. Menendez, P.M.M. Barbosa, J.E.C. Figueira & F.A. Esteves, 1984. Estudos limnológicos na região cárstica central de Minas Gerais. I. Caracterização preliminar da Lagoa Santa. **Anais do Seminário Regional de Ecologia, São Carlos** 4: 399-437.
- Barbosa, P.M.M. & T. Matsumura-Tundisi, 1984. Consumption of zooplanktonic organisms by *Astyanax fasciatus* Cuvier, 1819 (Osteichthyes, Characidae) in Lobo (Broa) Reservoir, São Carlos, SP, Brasil.

- Hydrobiologia** 113: 171-181.
- Battistoni, P.A., 1995. Crustacea Copepoda: 953-971pp. *In: Ecosistemas de Aguas Continentales: Metodologías para su Estudio*. (Lopretto, E. C. & G. Tell, Eds.), Vol. 3. Ediciones Sur, La Plata.
- Bayly, I.A.E., 1964. A revision of the Australasian species of the freshwater genera *Boeckella* and *Hemiboeckella* (Copepoda: Calanoida). **Australian Journal of Marine and Freshwater Research** 15: 180-238.
- Bayly, I.A.E., 1992a. Fusion of the genera *Boeckella* and *Pseudoboeckella* (Copepoda) and revision of their species from South America and sub-Antarctic Islands. **Revista Chilena de Historia Natural** 65: 17-63.
- Bayly, I.A.E., 1992b. **The Non-marine Centropagidae (Copepoda: Calanoida) of the World**. Guides to the Identification of the Microinvertebrates of the Continental Waters of the World, vol. 2. SPB Academic Publishing, The Hague, 30p.
- Bayly, I.A.E., 1995. Distinctive aspects of the zooplankton of large lakes in Australasia, Antarctica and South America. **Marine and Freshwater Research** 46: 1109-1120.
- Bayly, I.A.E. & G.H. Arnott, 1969. A new centropagid genus (Copepoda: Calanoida) from Australian estuarine waters. **Australian Journal of Marine and Freshwater Research** 20: 189-198.
- Björnberg, T.K.S., 1963. On the marine free-living copepods off Brasil. **Boletim do Instituto Oceanográfico, São Paulo** 13: 3-142.
- Björnberg, T.K.S., 1964. Copépodes: 207-222pp. *In: História Natural de Organismos Aquáticos do Brasil. Bibliografia Comentada*. (P.E. Vanzolini, Ed.), FAPESP, São Paulo.
- Björnberg, T.K.S., 1968. **Estágios de desenvolvimento de alguns copépodos marinhos planctônicos tropicais e subtropicais**. Ph.D. Thesis, Universidade de São Paulo, S. Paulo, 174p.
- Björnberg, T.K.S., 1981. Copepoda: 587-679pp. *In: Atlas del Zooplancton del Atlantico Suboccidental y Métodos de Trabajo con Zooplancton Marino*. (D. Boltovskoy, Ed.), Instituto Nacional de Investigación y Desarrollo Pesquero (INIDEP), Mar del Plata.
- Bohrer, M.B.C. & P.B. de Araújo, 1999. Subclasse Copepoda (espécies de águas continentais): 92-105pp. *In: Os Crustáceos do Rio Grande do Sul*. (L. Buckup & G. Bond-Buckup, Eds.). Ed. Universidade/UFRGS, Porto Alegre.
- Bonecker, C.C., S.L.C. Bonecker, R.L. Bozelli, F.A. Lansac-Tôha & L.F.M. Velho, 1996. Zooplankton composition under the influence of liquid wastes from a pulp mill in Middle Doce River (Belo Oriente, MG, Brasil). **Arquivos de Biologia e Tecnologia** 39: 893-901.
- Bonecker, S.L.C., A.C.T. Bonecker, C.R. Nogueira & M.V. Reynier, 1990. Zooplâncton do litoral norte do Espírito Santo-Brasil. Estrutura espaço-temporal. **Anais do IV Encontro Brasileiro de Plâncton**, Recife: 369-392.
- Bowman, T.E., 1973. Two freshwater copepods from Barrancas, Venezuela: *Notodiaptomus cearensis* (Wright) and *Notodiaptomus venezolanus deeveyorum*, new subspecies (Calanoida : Diaptomidae). **Proceedings of the Biological Society of Washington** 86: 193-302.
- Bowman, T.E., 1978. From Brasil to Jamaica: a range extension of the neritic calanoid copepod, *Pseudodiaptomus acutus*. **Crustaceana** 35: 249-252.
- Bozelli, R.L., 1992. Composition of the zooplankton community of Batata and Mussurá Lakes and of the Trombetas River, State of Pará, Brasil. **Amazoniana** 12: 239-261.
- Brandorff, G.-O., 1972. **Ein Beitrag zur Calanidenfauna (Crustacea, Copepoda) des Amazonasgebietes, mit einem Überblick über die Diaptomiden (Crustacea, Copepoda) Südamerikas**. M.Sc. Thesis, Universität Kiel, 57p.
- Brandorff, G.-O., 1973a. Die neotropischer Gattung *Rhacodiaptomus* Kiefer (Crustacea, Copepoda) mit der Beschreibung von zwei neuen Arten. **Amazoniana** 4: 341-365.
- Brandorff, G.-O., 1973b. Neue freilebende calanoide Copepoden (Crustacea) aus den Amazonasgebiet. **Amazoniana** 4: 205-218.
- Brandorff, G.-O., 1976. The geographical distribution of the Diaptomidae in South America (Crustacea, Copepoda). **Revista Brasileira de Biologia** 36: 613-627.
- Brandorff, G.-O., 1978a. Ein neuer Diaptomid (Crustacea, Copepoda) "*Diaptomus*" *ohlei* aus den brasilianischen Amazonasgebiet. **Archiv für Hydrobiologie** 82: 295-299.
- Brandorff, G.-O., 1978b. Preliminary comparison of the crustacean plankton of a white water and a black water lake in Central Amazonia. **Verhandlungen der Internationale Vereinigung für Limnologie** 20: 1198-1202.
- Brandorff, G.-O., W. Koste & N.N. Smirnov, 1982. The composition and structure of Rotiferan and Crustacean Communities of the Lower Rio Nhamundá, Amazonas, Brasil. **Studies on Neotropical Fauna and Environment** 17: 69-121.
- Brehm, V., 1926. Zoologische Ergebnisse der von Prof. Dr. F. Klute nach Nordpatagonien unternommenen Forschungsreise I. Die Entomostraken. **Archiv für Hydrobiologie** 16: 302-324.
- Brehm, V., 1933a. *Argyrodiaptomus granulatus* nov. spec., ein neuer *Diaptomus* aus Uruguay. **Zoologischer Anzeiger** 104: 283-287.
- Brehm, V., 1933b. Mitteilungen von der Wallacea-Expedition Woltereck. Mitteilung IV. Einige neue Diaptomiden. **Zoologischer Anzeiger** 103: 295-304.
- Brehm, V., 1933c. *Diaptomus thomsoni* nov. spec., ein merkwürdiger neuer *Diaptomus* aus Uruguay. **Zoologischer Anzeiger** 104: 221-224.
- Brehm, V., 1934. Mitteilungen von Wallacea-Expedition

- Woltereck. Mitteilung X. Über die systematische Stellung des von der Wallacea-Expedition entdeckten *Pseudodiaptomus nostradamus* Brehm und über die Systematik der Pseudodiaptomiden überhaupt. **Zoologischer Anzeiger** 106: 84-93.
- Brehm, V., 1935a. Mitteilungen von den Forschungsreisen Prof. Rahms. Mitteilung II. Gibt es in der chilenischen Region Diaptomiden? *Diaptomus diabolicus* nov. spec. **Zoologischer Anzeiger** 112: 9-13.
- Brehm, V., 1935b. Über die Süßwasserfauna von Uruguay. **Archiv für Hydrobiologie** 28: 295-309.
- Brehm, V., 1936. Über die tiergeographischen Verhältnisse der circumantarktischen Süßwasserfauna. **Biological Reviews** 11: 477-497.
- Brehm, V., 1937a. Weitere Mitteilungen über die Süßwasserfauna Uruguays. I. Teil. **Zoologischer Anzeiger** 120: 120-125.
- Brehm, V., 1937b. Weitere Mitteilungen über die Süßwasserfauna von Uruguay. II Teil. Zur Variabilität der *Boeckella Bergi* Rich. **Zoologischer Anzeiger** 120: 301-306.
- Brehm, V., 1938. Nachträgliche Notizen zur Süßwasserfauna von Uruguay. **Zoologischer Anzeiger** 123: 26-32.
- Brehm, V., 1939. Weitere Mitteilungen über die Süßwasserfauna Uruguays. **Zoologischer Anzeiger** 125: 39-43.
- Brehm, V., 1954. Sobre los Copépodos hallados por el Professor Birabén en la Argentina (Crust.) Ia. Comunicación. **Neotropica** 1: 37-42.
- Brehm, V., 1955. Mexicanische Entomostraken. **Österreichische Zoologische Zeitschrift**, Wien 6: 412-420.
- Brehm, V., 1956a. Sobre los Copépodos hallados por el Professor Birabén en la Argentina (Crust.) 3. **Comunicación. Neotropica** 2: 85-90.
- Brehm, V., 1956b. Ueber einige Entomostraken Südamerikas. **Sitzungsberichten der Österreichischen Akademie der Wissenschaften, Mathematisch-naturwissenschaftliche Klasse**, Abteilung 1, 165: 537-546.
- Brehm, V., 1957. Sobre los copepodos hallados por el Prof. Birabén en la Argentina. 4a. **Comunicación. Neotropica** 3: 53-64.
- Brehm, V., 1958a. Bemerkungen zu einigen Kopepoden Südamerikas. **Sitzungsberichten der Österreichischen Akademie der Wissenschaften**, Abteilung 1, 167: 139-171.
- Brehm, V., 1958b. Sobre los Copépodos hallados por el Professor Birabén en la Argentina. 5ª **Comunicación. Neotropica** 4: 1-12.
- Brehm, V., 1958c. Die systematischen Verhältnisse bei *Notodiaptomus anisitsi* Daday und *perelegans* Wright. **Sitzungsberichten der Österreichischen Akademie der Wissenschaften**, Abteilung 1, 167: 575-582.
- Brehm, V., 1959. Bemerkungen zur einigen Kopepoden Südamerikas. **Sitzungsberichten der Österreichischen Akademie der Wissenschaften**, Abteilung 1, 168: 497-521.
- Brehm, V., 1960. Sobre los copépodos hallados por el Profesor Birabén en la Argentina. VIa. **Comunicación. Neotropica** 6: 49-54.
- Brehm, V., 1965. Bericht über eine unvollendet gebliebene Untersuchung der Argentinischen Kopepodenfauna. **Sitzungsberichten der Österreichischen Akademie der Wissenschaften**, Abteilung 1, 174: 1-15.
- Brian, A., 1926. Di alcuni Copepodi d'acque dolce dell'Argentina, raccolti dal Prof. F. Silvestri. **Memorie della Società Entomologica Italiana** 4: 177-200.
- Brian, A., 1927. Aggiunte e note sui Copepodi d'acque dolce raccolti dal Prof. F. Silvestri nell'Argentina. **Bollettino de la Società Entomologica Italiana** 59: 126-132.
- Burckhardt, G., 1913. Wissenschaftliche Ergebnisse einer Reise um die Erde von M. Pernod und C. Schröter. III. Zooplankton aus ost- und südasiatischen Binnengewässern. **Zoologische Jahrbucher, Abteilung für Systematik, Ökologie, und Geographie der Tiere** 34: 341-472.
- Caleffi, S., 1998. Guarapiranga Reservoir: a study of the zooplankton community and aspects of its eutrophication. **Verhandlungen der Internationale Vereinigung für Limnologie** 26: 1898-1903.
- Campaner, A.F., 1981. Resultados preliminares sobre a ocorrência e distribuição de copépodos ao largo de Cabo Frio, Brasil: 281-282pp. **Seminários de Biologia Marinha**, Academia Brasileira de Ciências, Rio de Janeiro.
- Campaner, A.F., 1985. Occurrence and distribution of Copepods (Crustacea) in the epipelagial off southern Brasil. **Boletim do Instituto Oceanográfico**, São Paulo 33: 5-27.
- Campos, J.R.C., F.A. Lansac-Tôha, M.A. Nunes, A.P.P. Garcia & F.R. Prado, 1996. Composição da comunidade zooplancônica de três lagoas da ilha Porto Rico na planície de inundação do alto rio Paraná. **Acta Limnologica Brasiliensia** 8: 183-194.
- Carvalho, J.P., 1945. Copépodos de Caiobá e Baía de Guaratuba. **Arquivos do Museu Paranaense** 4: 83-116.
- Carvalho, J.P., 1952. Sobre uma coleção de copépodos, não parasíticos, da Baía de Santos e suas adjacências. **Boletim do Instituto Oceanográfico**, São Paulo 3: 131-183.
- Carvalho, M.A.J. & S. Sendacz, 1998. Zooplankton community of sand pits of Paraíba do Sul River basin, São Paulo, Brasil. **Verhandlungen der Internationale Vereinigung für Limnologie** 26: 1524-1528.
- Carvalho, M.L., 1983. Efeitos da flutuação do nível da água sobre a densidade e composição do zooplâncton em um lago de várzea da Amazônia, Brasil. **Acta Amazonica** 13: 715-724.
- Cei, J.M., 1972. Segregación corológica y procesos de

- especiación por aislamiento en anfibios de la Pampa de Achala, Córdoba. **Acta Zoologica Lilloana** 29: 233-245.
- Cervigón, F. & P.J. Marciano, 1967. Zooplankton. **Memórias de la Sociedad de Ciencias Naturales La Salle** 25: 263-358.
- Cicchino, G., 1972. Desarrollo post-embrionario de *Notodiaptomus coniferoides* (Wright, 1927) y *Eucyclops neumanni* (Pesta, 1927) (Crustacea, Copepoda). **Physis**, Buenos Aires 31(83): 585-596.
- Cicchino, G., 1975. Redescrición y desarrollo postembrionario de *Pseudodiaptomus richardi inaequalis* (Brian) con notas acerca de sus afinidades con otras especies del genero (Copepoda, Pseudodiaptomidae). **Physis**, Buenos Aires 34: 37-49.
- Cicchino, G., 1994. Importance of the genital operculum in the taxonomy of South American Diaptomidae (Copepoda, Calanoida). **Hydrobiologia** 292/293: 143-147.
- Cicchino, G. & B.H. Dussart, 1991. Una nueva especie del género *Rhacodiaptomus* (Crustacea Copepoda) de Venezuela. **Acta Biologica Venezuelana** 13: 105-108.
- Cicchino, G., E. Zoppi de Roa & E. Montiel, 1989. *Notodiaptomus henseni* Dahl (Crustacea-Copepoda): un problema de sinonimia en el zooplankton de Venezuela. **Acta Biologica Venezuelana** 12: 98-105.
- Cicchino, G., E.N. Santos-Silva & B.A. Robertson, 2008. A new species of *Notodiaptomus* Kiefer, 1936 (Copepoda, Diaptomidae) from the Amazon and Orinoco River Basins. **Hydrobiologia** 0:00-00 (in press).
- Cipólli, M.N., 1973. Morfologia externa das fases de desenvolvimento de *Diaptomus corderoi* Wright, 1936 (Crustacea, Copepoda, Calanoidea). **Boletim de Zoologia e Biologia Marinha** 30: 567-612.
- Cipólli, M.N. & M.A.J. Carvalho, 1973. Levantamento de Calanoida e Cyclopoida (Copepoda, Crustacea) das águas da região do Guamá, Capim e Tocantins, com nota sobre a fauna acompanhante. **Papéis Avulsos do Departamento de Zoologia**, Univ. São Paulo 27: 95-110.
- Collado, C., C.H. Fernando & D. Sephton, 1984. The freshwater zooplankton of Central America and the Caribbean. **Hydrobiologia** 113: 105-119.
- Dabés, M.B.G.S., R.C. França, M.C.S. Gomes, M.V. Junqueira, M.E. Rolla & S.G. Rosa, 1990. Caracterização limnológica da represa de Pontal, Itabira (MG). **Acta Limnologica Brasiliensia** 3: 173-199.
- Daday, E., 1901. Diagnoses praecursoriae Copepodorum novorum e Patagonia. **Természetrájsz Füzetek** 24: 345-352.
- Daday, E., 1902. Mikroskopische Süßwasserthiere aus Patagonien, gesammelt von Dr. Filippo Silvestri. **Természetrájsz Füzetek** 25: 201-310.
- Daday, E., 1905. Untersuchungen über die Süßwasser-mikrofauna Paraguays, VI. Copepoda. **Zoologica**, Stuttgart 18(44): 131-153 + pls. 8,9.
- Dahl, F., 1894. Die Copepodenfauna des unteren Amazonas. **Berichte der Naturforschenden Gesellschaft zu Freiburg** 8: 10-23.
- De Guerne, J. & J. Richard, 1889. Révision des Calanides d'eau douce. **Mémoires de la Société Zoologique de France** 2: 53-181.
- De Guerne, J. & J. Richard, 1892. Documents nouveaux sur la distribution géographique des Calanides d'eau douce. **Comptes Rendus de l'Association Française pour l'Avancement des Sciences**, Paris 20: 595-599 + pl. 5.
- Defaye, D. & B.H. Dussart, 1989. Compléments à la faune des Crustacés Copépodes des eaux intérieures de Guyane française. **Revue d'Hydrobiologie Tropicale** 21: 109-125. (For 1988.)
- Defaye, D. & B.H. Dussart, 1993. *Dasydiaptomus* nom. nov. for *Trichodiaptomus* (Copepoda, Calanoida, Diaptomidae). **Hydrobiologia** 257: 127.
- Douwe, C. Van, 1911. Neue Süßwasser-copepoden aus Brasilien. **Zoologischer Anzeiger** 37: 161-163.
- Douwe, C. Van, 1912. Zur Kenntnis der Süßwasser-copepoden von Brasilien. **Archiv für Hydrobiologie** 7: 309-321.
- Durigan, J.G., L.H. Sipaúba-Tavares & D.B.S. de Oliveira, 1992. Estudo limnológico em tanques de piscicultura. Parte I: variação nictemeral de fatores físicos, químicos e biológicos. **Acta Limnologica Brasiliensia** 4: 211-223.
- Dussart, B.H., 1979. Algunos copépodos de América del Sur. **Publicaciones Ocasionales, Museo Nacional de Historia Natural**, Santiago 30: 1-3.
- Dussart, B.H., 1983. Copépodes d'eau douce de Guyane française. **Revue d'Hydrobiologie Tropicale** 16: 321-325.
- Dussart, B.H., 1984a. Some Crustacea Copepoda from Venezuela. **Hydrobiologia** 113: 25-67.
- Dussart, B.H., 1984b. Sur quelques copépodes d'Amérique du Sud, IV. **Revista Brasileira de Biologia** 44: 255-265.
- Dussart, B.H., 1985a. Sur quelques copépodes d'Amérique du Sud, V. Diaptomidae. **Archiv für Hydrobiologie** 103: 201-215.
- Dussart, B.H., 1985b. Another new diaptomid (Crustacea, Copepoda) from the Brazilian Amazon. **Amazoniana** 9: 275-280.
- Dussart, B.H. & D. Defaye, 1983. **Répertoire Mondial des Crustacés Copépodes des Eaux Intérieures. I. Calanoïdes**. Editions CNRS, Paris, 224p.
- Dussart, B.H. & D. Defaye, 1995. **Copepoda: Introduction to the Copepoda**. Guides to the Identification of the Microinvertebrates of the Continental Waters of the World, vol. 7. SPB Academic Publishing, The Hague, 277 pp.
- Dussart, B.H. & C.H. Fernando, 1986. Remarks on two species of copepods in Costa Rica, including a description of a new species of *Tropocyclops*. **Crustaceana** 50: 39-44.

- Dussart, B.H. & S.M. Frutos, 1986. Sur quelques copépodes d'Argentine. **Revue d'Hydrobiologie Tropicale** 18: 305-514. (For 1985.)
- Dussart, B.H. & S.M. Frutos, 1987. Sur quelques Copépodes d'Argentine. 2. Copépodes du Paraná Medio. **Revue d'Hydrobiologie Tropicale** 19: 241-262. (For 1986.)
- Dussart, B.H. & T. Matsumura-Tundisi, 1986. Nouvelles espèces de Calanoïdes du Brésil. **Revista Brasileira de Biologia** 46: 249-255.
- Dussart, B.H. & B.A. Robertson, 1984. *Notodiaptomus paraensis* n.sp., a new diaptomid (Crustacea, Copepoda) from the Brazilian Amazon. **Amazoniana** 8: 389-394.
- Ekman, S., 1905a. Cladoceren und Copepoden aus Antarktischen und subantarktischen Binnengewässern gesammelt von der Schwedischen Antarktischen Expedition 1901-1903. In: **Wissenschaftliche Ergebnisse der Schwedischen Südpolar-Expedition 1901-1903**, 5, Zoologie 1(4): 1-40 + pls. 1-3.
- Ekman, S., 1905b. Die Systematik und Synonymik der Copepodengattung *Boeckella* und verwandter Gattungen. **Zoologischer Anzeiger** 29: 593-604.
- Espíndola, E.L.G., T. Matsumura-Tundisi, A.C. Rietzler & J.G. Tundisi, 2000. Spatial heterogeneity of the Tucuruí Reservoir (state of Pará, Amazonia, Brasil) and the distribution of zooplanktonic species. **Revista Brasileira de Biologia** 60: 179-194.
- Forró, L., 1986. E. Daday: his work on Copepoda and extant material. **Syllogeus** 58: 556-561.
- Freire, B.M. & R.M. Pinto-Coelho, 1986. Composição e distribuição horizontal do zooplâncton no reservatório de Vargem das Flores, Betim/Contagem, Minas Gerais. **Ciência e Cultura** 38: 919-927.
- Frutos, S.M., 1993. Zooplankton en cuerpos de agua isleños del Bajo Paraná. **Ambiente Subtropical** 3: 87-121.
- Fukuhara, H., G.E. Torres, S.M. Monteiro & T. Sunaga, 1997. Migratory and non-migratory *Chaoborus* species in Lake Dom Helvécio, 345-351pp. In: **Limnological Studies on the Rio Doce Valley Lakes, Brasil**. (J.G. Tundisi & Y. Saijo, Eds.). Brazilian Academy of Sciences. University of São Paulo, School of Engineering at São Carlos, Center for Water Resources and Applied Ecology, São Carlos.
- Gaeta, S.A., 1994. Zooplâncton costeiro do Estado de São Paulo. **Diagnóstico Ambiental Oceânico e Costeiro das Regiões Sul e Sudeste do Brasil** 4: 79-86.
- Garrido, G.G., 1999. Composición y abundancia del zooplankton en dos estaciones de muestreo del embalse de Yacyretá, Argentina, en las primeras etapas después del llenado a cota 76 m s.n.m. **Revista de Ictiología** 7 (Número Especial): 27-35.
- Gaudy, R., 1963. Campagne du navire océanographique "Calypso" dans le eaux cotières du Brésil (Janvier-Février 1962). Copépodes pélagiques. **Recueil des Travaux de la Station Marine d'Endoume** 30:15-42.
- Gaviria, S., 1989. The calanoid fauna (Crustacea, Copepoda) of the Cordillera Oriental of the Colombian Andes. **Hydrobiologia** 178: 113-134.
- Gay, C., 1848-49. **Atlas da Historia Fisica y Politica de Chile**, Vol. 3. Paris.
- Giani, A., R.M. Pinto-Coelho, A. Pelli, J.A. Silva & S.M. Oliveira, 1986. **Eutrofização da Represa da Pampulha: fatores físico-químicos e organismos planctônicos como indicadores do estado trófico**. FUNDEP/SUDECAP, Belo Horizonte. 28 pp.
- Giesbrecht, W., 1892. Systematik und Faunistik der pelagischen Copepoden des Golfes von Neapel und der angrenzenden Meeres-Abschnitte. **Fauna und Flora des Golfes von Neapel (Monographie)**, 19: 831 pp. + 54 pls.
- Giesbrecht, W. & O. Schmeil, 1898. Copepoda I. Gymnoplea. **Das Tierreich** 6: 1-169.
- Gloeden, I.M., 1993. Ocorrência de *Argyrodiaptomus denticulatus* Pesta, 1927 (Crustacea, Copepoda) na Lagoa dos Patos, Rio Grande do Sul, Brasil. **Nauplius** 1: 91-92.
- Gloeden, I.M., 1994. Ocorrência de *Boeckella bergi* Richard, 1897 (Copepoda, Calanoida) na Lagoa Mirim, Rio Grande do Sul, Brasil. **Nauplius** 2: 123-124.
- Gloeden, I.M., 1997. First record of *Pseudoboeckella poppei* Mrázek, 1901 (Copepoda, Calanoida, Centropagidae) in Brasil. **Nauplius** 4: 173-174. (For 1996.)
- Goodman, B.J.A., 1969. A physical, chemical and biological investigation of some fresh-water pools on Signy Island, South Orkney Islands. **British Antarctic Survey Bulletin** 20: 1-31.
- Gouvêa, E.P., 1980. Estágios do desenvolvimento naupliar de *Notodiaptomus conifer* (Sars, 1901) (Copepoda, Calanoida). **Ciência e Cultura** 32: 1047-1059.
- Harding, J.P., 1941. Lower Crustacea. In: **Scientific Reports of the British Graham Land Expedition, 1934-37**, 1: 319-322.
- Hardy, E.R., 1980. Composição do zooplâncton em cinco lagos da Amazônia Central. **Acta Amazonica** 10: 577-609.
- Hardy, E.R., J. Adis & G.-O. Brandorff, 1984. Lectotype designation for Amazonian Diaptomidae and Bosminidae (Crustacea: Copepoda, Cladocera). **Acta Amazonica** 14: 529-531.
- Henry, R. & M.G. Nogueira, 1999. A Represa de Jurumirim (São Paulo): primeira síntese sobre o conhecimento limnológico e uma proposta preliminar de manejo ambiental: 653-685pp. In: **Ecologia de Reservatórios: Estrutura, Função e Aspectos Sociais**. (R. Henry, Ed.), FUNDIBIO/FAPESP, Botucatu.
- Herbst, H.-V., 1967. Copepoda und Cladocera (Crustacea) aus Südamerika. **Gewässer und Abwässer** 44/45: 96-108.
- Herrick, C.L., 1884. A final report on the Crustacea of Minnesota, included in the Orders Cladocera and Copepoda. **Annual Reports of the Geological and Natural History Survey of Minnesota** 12: 1-192 +

- pls. 1-29.
- Herrick, C.L. & C.H. Turner, 1895. Synopsis of the Entomostraca of Minnesota, with description of related species comprising all known forms from the United States included in the orders Copepoda, Cladocera, Ostracoda. **Reports of the Geological and Natural History Survey of Minnesota**, Series 2, 2: 1-525.
- Heywood, R.B., 1970a. The mouth parts and feeding habits of *Parabroteas sarsi* (Daday) and *Pseudoboeckella silvestri* Daday (Copepoda, Calanoida), 639-650pp. In: **Antarctic Ecology**. (M.W.Holdgate, Ed.). Academic Press, London.
- Heywood, R.B., 1970b. Ecology of the freshwater lakes of Signy Island, South Orkney Islands: III. Biology of the copepod *Pseudoboeckella silvestri* Daday (Calanoida Centropagidae). **British Antarctic Survey Bulletin** 23: 1-17.
- Heywood, R.B., 1972. Antarctic limnology: a review. **British Antarctic Survey Bulletin** 29: 35-65.
- Heywood, R.B., 1977. The correct identity of a *Pseudoboeckella* sp. (Copepoda, Calanoida) from Signy Island, South Orkney Islands. **British Antarctic Survey Bulletin** 45: 147-149.
- International Commission on Zoological Nomenclature, 2000. **International Code of Zoological Nomenclature**. 4th Ed. International Union of Biological Sciences- International Commission on Zoological Nomenclature. International Trust for Zoological Nomenclature, London, 306 pp.
- Infante, A., W. Riehl & J.F. Saunders, 1979. Los copépodos del lago de Valencia, Venezuela. **Acta Científica Venezolana** 30: 224-233.
- Jacoby, C.A. & M.J. Youngbluth, 1983. Mating behavior in three species of *Pseudodiaptomus* (Copepoda: Calanoida). **Marine Biology** 76: 77-86.
- Jersabek, C.D., A. Goldschmidt & R. Schabetsberger, 1996. Naupliar development of *Acanthodiaptomus denticornis* (Wierzejski, 1887) and *Arctodiaptomus alpinus* (Imhof, 1885) (Copepoda: Calanoida) and a comparison with other Diaptomidae. **Journal of Plankton Research** 18: 2027-2061.
- Jolly, V.H., 1957. A review of the copepod genus *Boeckella* in New Zealand. **Transactions of the Royal Society of New Zealand** 84: 855-865.
- José de Paggi, S., 1978. First observations on longitudinal succession of zooplankton in the main course of the Paraná River between Santa Fé and Buenos Aires harbour. **Studies on Neotropical Fauna and Environment** 13: 143-156.
- José de Paggi, S., 1981. Variaciones temporales y distribución horizontal del zooplancton en algunos cauces secundarios del río Paraná Medio. **Studies on Neotropical Fauna and Environment** 16: 185-199.
- José de Paggi, S. & J. C. Paggi, 1988. Zooplankton de ambientes acuáticos con diferente estado trófico y salinidad. **Neotrópica** 44: 95-106.
- Juday, C., 1914. A new species of *Diaptomus*. **Transactions of the Wisconsin Academy of Sciences, Arts, and Letters** 17: 803-805.
- Kiefer, F., 1926. Beiträge zur Copepodenkunde (IV). **Zoologischer Anzeiger** 69: 21-26.
- Kiefer, F., 1928a. Beiträge zur Copepodenkunde (VII). **Zoologischer Anzeiger** 75: 216-223.
- Kiefer, F., 1928b. Beiträge zur Copepodenkunde (X). **Zoologischer Anzeiger** 78: 169-174.
- Kiefer, F., 1929. Beiträg zur Copepodenkunde (XII). 30. Zur Kenntnis der Cyclopiden Nordamerikas. 31. Ein neuer *Diaptomus* aus Südamerika. 32. Zur Geographie des *Diaptomus zacharias* Poppe. **Zoologischer Anzeiger** 80: 305-309.
- Kiefer, F., 1932. Versuch eines Systems der Diaptomiden (Copepoda Calanoida). **Zoologische Jahrbücher (Systematik)** 63: 451-520.
- Kiefer, F., 1933. Süßwassercopepoden aus Brasilien. **Zoologischer Anzeiger** 105: 38-43.
- Kiefer, F., 1936a. Über die Systematik der Südamerikanischen *Diaptomiden* (Crustacea Copepoda). **Zoologischer Anzeiger** 116: 194-200.
- Kiefer, F., 1936b. Feilebende Süß- und Salzwassercopepoden von der Insel Haiti. **Archiv für Hydrobiologie** 30: 263-317.
- Kiefer, F., 1937. Eine kleine Copepodenausbeute aus der östlichen Mongolei. **Zoologischer Anzeiger** 119: 293-298.
- Kiefer, F., 1954. Drei neue Ruderfusskrebse (Crust. Cop.) aus Venezuela. **Zoologischer Anzeiger** 153: 170-174.
- Kiefer, F., 1956. Freilebende Ruderfusskrebse (Crustacea Copepoda). I. Calanoida und Cyclopoida. In: **Ergebnisse der Deutschen Limnologischen Venezuela-Expedition 1952** 1: 233-268.
- Kiefer, F., 1978. Freilebende Copepoda. Das Zooplankton der Binnengewässer. **Binnengewässer** 26(2): 1-343.
- Kleerekoper, H., 1944. **Introdução ao Estudo da Limnologia**. Série Didática No. 4, Serviço de Informação Agrícola, Ministério da Agricultura, Rio de Janeiro. 329p. (facsimile edition, 1990, Editora da Universidade Federal do Rio Grande do Sul, Porto Alegre).
- Kottelat, M., 1998. Systematics, species concepts and the conservation of freshwater fish diversity in Europe. **Italian Journal of Zoology** 65 (supplement): 65-72.
- Kozłowski-Suzuki, B., C.W.C. Branco & R.L. Bozelli, 1998. Comparison of the composition and the temporal variation of the zooplanktonic community of two Brazilian coastal lagoons. **Verhandlungen der Internationale Vereinigung für Limnologie** 26: 1487-1490.
- Lansac-Tôha, F.A., C.C. Bonecker, L.F.M. Velho & A.F. Lima, 1997. Composição, distribuição e abundância da comunidade zooplantônica, 117-155pp. In: **A Planície de Inundação do Alto Rio Paraná - Aspectos Físicos, Biológicos e Socioeconômicos**. (A.E.A.M. Vazzoler, A.A. Agostinho & N.S. Hahn, Eds.). Editora da Universidade Estadual de Maringá, Maringá.

- Lansac-Tôha, F.A., A.F. Lima, S.M. Thomaz & M.C. Roberto, 1992. Zooplâncton de uma planície de inundação do Rio Paraná. I. Análise qualitativa e estrutura da comunidade. **Revista Unimar**, Maringá 14 (suplemento): 33-55.
- Lansac-Tôha, F.A., S.M. Thomaz, A.F. Lima, M.C. Roberto & A.P. Garcia, 1995. Vertical distribution of some planktonic crustaceans in a "várzea" lake (Lake Pousada das Garças) of the floodplain of High River Paraná, MS, Brasil. **International Journal of Ecology and Environmental Sciences** 21: 67-78.
- Light, S.F., 1939. New American subgenera of *Diaptomus* Westwood (Copepoda, Calanoida). **Transactions of the American Microscopical Society** 58: 473-484.
- Lima, A.F., F.A. Lansac-Tôha & C.C. Bonecker, 1996. Zooplankton in the floodplains of a tributary to the Paraná River in Mato Grosso do Sul, Brasil. **Studies on Neotropical Fauna and Environment** 31: 112-116.
- Löffler, H., 1958. Die Klimatypen des holomiktischen Sees und ihre Bedeutung für die zoogeographische Fragen. **Sitzungsberichte der Österreichischen Akademie der Wissenschaften, Mathematisch-naturwissenschaftliche Klasse** 167: 1-33.
- Löffler, H., 1963. Zur Ostrakoden- und Copepodenfauna Ekuadors. **Archiv für Hydrobiologie** 59: 196-234.
- Löffler, H., 1981. Copepoda, 14-19pp. *In: Aquatic Biota of Tropical South America, Part 1: Arthropoda*. (S.H. Hurlbert, G. Rodriguez & N.D. Santos, Eds.). San Diego State University, San Diego.
- Lopes, R.M., F.A. Lansac-Tôha, R. Vale & M. Serafim Jr., 1997. Comunidade zooplancônica do reservatório de Segredo, 39-60pp. *In: Reservatório do Segredo: Bases Ecológicas Para o Manejo*. (A.A. Agostinho & L.C. Gomes, Eds.). Editora da Universidade Estadual de Maringá, Maringá.
- Lowndes, A.G., 1934. Results of an expedition to Brasil and Paraguay in 1926-7 supported by the trustees of the Percy Sladen Memorial Fund and the Executive Committee of the Carnegie Trust for Scotland. Copepoda. **Journal of the Linnean Society, Zoology** 39(263): 83-131.
- Lubbock, J., 1855. On the freshwater Entomostraca of South America. **Transactions of the Entomological Society of London** 3: 236-340.
- Magalhães, C., J.C.O. Malta, B.A. Robertson & A. Varela, 1988. A Catalogue of type specimens of Crustacea in the Invertebrate Collection of the Instituto Nacional de Pesquisas da Amazônia, Manaus, Brasil, up to January, 1988. **Amazoniana** 10: 267-282.
- Marsh, C.D., 1913. Report on fresh-water copepods from Panama, with descriptions of new species. **Smithsonian Miscellaneous Collections** 61: 1-31 + pls. 1-5.
- Marsh, C.D., 1924. A synopsis of the species of *Boeckella* and *Pseudoboeckella* with a key to the genera of freshwater Centropagidae. **Proceedings of the United States National Museum** 64: 1-28.
- Marsh, C.D., 1933. Synopsis of the calanoid crustaceans, exclusive of the Diaptomidae, found in fresh and brackish waters, chiefly of North America. **Proceedings of the United States National Museum** 82: 1-58 + pls. 1-24.
- Matsumura-Tundisi, T., 1985. Composition and vertical distribution of zooplankton in Lake D. Helvécio (Minas Gerais - Brasil), 129-140pp. *In: Limnological Studies in Central Brasil (1st Report)*. (Y. Saijo & J.G. Tundisi, Eds.). Water Research Institute, Nagoya University, Nagoya.
- Matsumura-Tundisi, T., 1986. Latitudinal distribution of Calanoida copepods in freshwater aquatic systems of Brasil. **Revista Brasileira de Biologia** 46: 527-553.
- Matsumura-Tundisi, T., 1999. Diversidade de zooplâncton em represas do Brasil, 41-54pp. *In: Ecologia de Reservatórios: Estrutura, Função e Aspectos Sociais*. (R. Henry, Ed.). FUNDIBIO-FAPESP, Botucatu.
- Matsumura-Tundisi, T. & W.Y. Okano, 1983. Seasonal fluctuations of copepod populations in Lake Dom Helvécio (Parque Florestal, Rio Doce, Minas Gerais, Brasil). **Revue d'Hydrobiologie Tropicale** 16: 35-39.
- Matsumura-Tundisi, T., W.Y. Okano & J.G. Tundisi, 1997. Vertical migration of copepod populations in the tropical monomictic Lake Dom Helvécio, 297-307pp. *In: Limnological Studies on the Rio Doce Valley Lakes, Brasil*. (J.G. Tundisi & Y. Saijo, Eds.). Brazilian Academy of Sciences. University of São Paulo, School of Engineering at São Carlos, Center for Water Resources and Applied Ecology, São Carlos.
- Matsumura-Tundisi, T. & O. Rocha, 1983. Occurrence of Copepod (Calanoida Cyclopoida and Harpacticoida) from "Broa" Reservoir (São Carlos, São Paulo, Brasil). **Revista Brasileira de Biologia** 43: 1-17.
- Matsumura-Tundisi, T., O. Rocha & J.G. Tundisi, 1997. Carbon uptake by *Scolodiptomus corderoi* and *Thermocyclops minutus* feeding on different size fractions of phytoplankton from Lake Dom Helvécio, 275-284pp. *In: Limnological Studies on the Rio Doce Valley Lakes, Brasil*. (J.G. Tundisi & Y. Saijo, Eds.). Brazilian Academy of Sciences. University of São Paulo, School of Engineering at São Carlos, Center for Water Resources and Applied Ecology, São Carlos.
- Matsumura-Tundisi, T. & J.G. Tundisi, 1986. Biomass and zooplankton community structure of three lakes of River Doce Valley (Minas Gerais-Brasil), 35-43pp. *In: Supplement of the Fifth Japan-Brasil Symposium on Science and Technology*. Gakushi-Kaikan, Kanda, Tokyo.
- Matsumura-Tundisi, T. & J.G. Tundisi, 1995. Limnology of a warm monomictic lake at Rio Doce Forest Park (Lake Dom Helvécio, MG, eastern Brasil), 245-256pp. *In: Limnology in Brasil*. ABC/SBL, Rio de Janeiro.
- Matsumura-Tundisi, T., J.G. Tundisi, O. Rocha & M.C.

- Calijuri, 1997. The ecological significance of the metalimnion in lakes of Middle Rio Doce Valley, 373-390pp. *In: Limnological Studies on the Rio Doce Valley Lakes, Brasil.* (J.G. Tundisi & Y. Saijo, Eds.). Brazilian Academy of Sciences. University of São Paulo, School of Engineering at São Carlos, Center for Water Resources and Applied Ecology, São Carlos.
- Mauchline, J., 1998. **The Biology of Calanoid Copepods**. Academic Press, San Diego, 710p.
- Medeiros, G.F., C.E.F. Rocha & M.L. Silva, 1991. A note on the occurrence of *Pseudodiaptomus trihamatus* Wright, 1937 (Crustacea: Copepoda) in Natal, Brasil. **Boletim do Departamento de Oceanografia e Limnologia do Centro de Biociências da Universidade Federal do Rio Grande do Norte** 8: 113.
- Melão, M.G.G., 1999. A produtividade secundária do zooplâncton: métodos, implicações e um estudo na Lagoa Dourada, 151-183pp. *In: Ecologia de Reservatórios: Estrutura, Função e Aspectos Sociais.* (R. Henry, Ed.). FUNDIBIO-FAPESP, Botucatu.
- Menu-Marque, S., J.J. Morrone & C. Locascio de Mitrovich, 2000. Distributional patterns of the South American species of *Boeckella* (Copepoda: Centropagidae): a track analysis. **Journal of Crustacean Biology** 20: 262-272.
- Montú, M., 1980. Zooplâncton do estuário da Lagoa dos Patos. 1. Estrutura e variações temporais e espaciais da comunidade. **Atlantica**, Rio Grande 4: 53-72.
- Montú, M. & I.M. Gloeden, 1986. Atlas dos Cladocera e Copepoda (Crustacea) do estuário da lagoa dos Patos (Rio Grande, Brasil). **Nerítica** 1: 1-134.
- Montú, M. & I.M. Gloeden, 1998. Maxillopoda - Copepoda. Marine planktonic Calanoida, 167-200pp. *In: Catalogue of Crustacea of Brasil.* (P.S. Young, Ed.). Museu Nacional, Rio de Janeiro, Série Livros 6, 717p.
- Mrázek, A., 1901. Süßwasser-Copepoden. *In: Ergebnisse der Hamburger Magalhaensischen Sammelreise 1892/93*, 6 (2, Arthropoden): 1-29 + pls. 1-4.
- Neumann-Leitão, S. & T. Matsumura-Tundisi, 1998. Dynamics of a perturbed estuarine zooplanktonic community: Port of Suape, PE, Brasil. **Verhandlungen der Internationale Vereinigung für Limnologie** 26: 1981-1988.
- Nogueira, M.G. & E. Panarelli, 1997. Estudo da migração vertical das populações zooplânctônicas na represa de Jurumirim (Rio Paranapanema - São Paulo, Brasil). **Acta Limnologica Brasiliensia** 9: 55-81.
- Okano, W.Y., 1980. Padrão de migração vertical e flutuação sazonal das principais espécies de Copepoda (Crustacea) do Lago Dom Helvécio, Parque Florestal do Rio Doce - Minas Gerais. **M. Sc. Dissertation**, Departamento de Ciências Biológicas, Universidade Federal de São Carlos, São Carlos, 168 pp.
- Olivier, S.R., 1955. A few aspects of the regional limnology of the Province of Buenos Aires. **Verhandlungen der Internationale Vereinigung für Limnologie** 12: 296-301.
- Ortmann, A.E., 1911. Crustacea of southern Patagonia (Part VI). *In: Report of the Princeton University Expedition to Patagonia, 1898-1899*, 3: 635-667 + pl. 48.
- Owre, H.B. & M. Foyo, 1967. Copepods of the Florida Current, with illustrated keys to genera and species. **Fauna Caribaea** 1, Crustacea, Part 1: Copepoda: 1-137.
- Paggi, J.C., 1976a. Aportes al conocimiento de la fauna Argentina de copépodos dulceacuícolas. I. Sobre *Notodiaptomus isabelae* (Wright, 1936) y "*Diaptomus*" *santafesinus* Ringuelet y Martínez de Ferrato, 1967. **Revista de la Asociación de Ciencias Naturales del Litoral** 7:153-162.
- Paggi, J.C., 1976b. *Diaptomus susanae*: nueva especie de Diaptomidae hallada en la provincia de Entre Ríos, Republica Argentina. **Physis**, Buenos Aires 35(91): 85-92.
- Paggi, J.C., 1983. Estudios limnológicos en la península Potter, Isla 25 de Mayo (Shetland del Sur, Antártida): morfología y taxonomía de *Pseudoboeckella poppei* Mrázek 1901 (Crustacea: Copepoda). **Contribución Científica del Instituto Antártico Argentino** 303: 1-34.
- Paggi, J.C., 1987. Estudios limnológicos en la Isla Decepción, Shetland del Sur, Antártida: aspectos taxonómicos de los crustáceos del zooplancton. **Contribución Científica del Instituto Antártico Argentino** 338: 1-34.
- Paggi, J.C. & S. José de Paggi, 1974. Primeros estudios sobre el zooplancton de las aguas lólicas del Paraná medio. **Physis**, Buenos Aires 33(86): 91-114.
- Paggi, J.C. & S. José de Paggi, 1990. Zooplâncton de ambientes lóticos e lênticos do Rio Paraná Médio. **Acta Limnologica Brasiliensia** 3: 685-719.
- Pallares, R.E., 1963. Nota sobre *Notodiaptomus gibber* (Poppe, 1889) nov. comb. (Crust. Copepoda). **Physis**, Buenos Aires 24(67):39-42.
- Paranaguá, M.N., 1982. Ecossistema costeiro de Itamaracá (Pernambuco-Brasil). III. Zooplâncton. Resumos do Simpósio Internacional Sobre Utilização de Ecossistemas Costeiros: Planejamento, Poluição e Produtividade. **Atlantica**, Rio Grande 5: 90.
- Pearse, A.S., 1906. Fresh-water Copepoda of Massachusetts. **American Naturalist** 40: 241-251.
- Pearse, A.S., 1921. Crustacea from Lake Valencia, Venezuela. **Proceedings of the United States National Museum** 59: 459-462.
- Pereira, J.B. & L. Loureiro Fernandes, 2000. Variação temporal do zooplâncton da lagoa da UFES, Vitória, Espírito Santo. **Acta Limnologica Brasiliensia** 11: 79-88. (For 1999.)
- Pesta, O., 1927. Ein Beitrag zur Kenntnis der Copepodenfauna von Argentinien. **Zoologischer**

- Anzeiger** 73: 67-80.
- Pesta, O., 1928a. Eine Crustaceenausbeute aus Süd-Georgien (Antarktis). **Annales des Naturhistorischen Museums**, Wien 42: 75-86.
- Pesta, O., 1928b. Krebstiere oder Crustacea. I. Ruderfüsser oder Copepoda (1. Calanoida, 2. Cyclopoida). In: **Die Tierwelt Deutschlands und der Angrenzenden Meeressteile**. (F. Dahl, Ed.) 9: 1-136.
- Pesta, O., 1959. Die Systematischen Verhältnisse bei *Notodiaptomus anisitsi* (Daday) und *perelegans* Wright. **Anzeiger der Österreichischen Akademie der Wissenschaften**, Wien 95: 148.
- Pezzani, S., 1977. Copepoda, 139-143pp. In: **Biota Acuática de Sudamerica Austral**. (S.H. Hurlbert, Ed.). San Diego State University, San Diego.
- Pezzani-Hernández, S., 1975. Descripción de adultos y estadios inmaduros en *Pseudoboeckella poppei* Mrázek, 1901 (Copepoda-Calanoida). Importancia de su morfología externa en la taxonomía y en sus hábitos alimentarios. **Publicaciones del Instituto Antártido Chileno**, Serie Científica 3: 28-44.
- Pinto-Coelho, R.M., M.M. Coelho, M.M. Espírito Santo & T. G. Cornelissen, 1999. Efeitos da eutrofização na estrutura da comunidade planctônica na Lagoa da Pampulha, Belo Horizonte, MG, 553-572pp. In: **Ecologia de Reservatórios: Estrutura, Função e Aspectos Sociais**. (R. Henry, Ed.). FUNDIBIO/FAPESP, Botucatu.
- Pinto-Coelho, R.M., S.S. Lima & A. Pelli, 1988. Estudos experimentais sobre a alimentação em fêmeas adultas de *Diaptomus* (s. l.) *corderoi* (Wright, 1936) Copepoda-Calanoida, do Reservatório da Pampulha, Belo Horizonte - MG. **Acta Limnologica Brasiliensia** 2: 605-620.
- Poppe, S.A., 1891. Ein neuer *Diaptomus* aus Brasilien. **Zoologischer Anzeiger** 14: 248-250.
- Poppe, S.A. & A. Mrázek, 1895. Entomostraken von Süd-Georgien. In: Entomostraken des Naturhistorischen Museums in Hamburg. **Beihefte Jahrbucher der Hamburgischen Wissenschaftlichen Anstalten** 12: 135-138.
- Reid, J.W. 1985. Calanoid copepods (Diaptomidae) from coastal lakes, State of Rio de Janeiro, Brasil. **Proceedings of the Biological Society of Washington** 98: 574-590.
- Reid, J., 1987. *Scolodiaptomus*, a new genus proposed for *Diaptomus* (sensu lato) *corderoi* Wright, and description of *Notodiaptomus brandorffi*, new species (Copepoda: Calanoida), from Brasil. **Journal of Crustacean Biology** 72: 364-379.
- Reid, J.W., 1990. Redescription and new records of *Trichodiaptomus coronatus* (G. O. Sars) (Copepoda; Calanoida; Diaptomidae) from Brasil. **Proceedings of the Biological Society of Washington** 103: 140-150.
- Reid, J.W., 1991. The Stillman Wright Collection of Copepoda (Crustacea) from South America in the National Museum of Natural History, Smithsonian Institution. **Proceedings of the Biological Society of Washington** 104: 736-741.
- Reid, J.W., 1997. *Argyrodiaptomus nhumirim*, a new species, and *Austrinodiaptomus kleerekoperi*, a new genus and species, with redescription of *Argyrodiaptomus macrochaetus* Brehm, new rank, from Brasil (Crustacea: Copepoda: Diaptomidae). **Proceedings of the Biological Society of Washington** 110: 581-600.
- Reid, J.W. & F.A. Esteves, 1984. Considerações ecológicas e biogeográficas sobre a fauna de copépodos (Crustacea) planctônicos de 14 lagoas costeiras do Estado do Rio de Janeiro, Brasil, 305-326pp. In: **Restingas: Origem, Estrutura, Processos**. (L.D. Lacerda, D.S.D. Araújo, R. Cerqueira & B. Turcq, Eds.). CEUFF, Niterói.
- Reid, J.W. & I.H. Moreno, 1990. The Copepoda (Crustacea) of the southern Pantanal, Brasil. **Acta Limnologica Brasiliensia** 3: 721-739.
- Reid, J.W. & R.M. Pinto-Coelho, 1994. Planktonic Copepoda of Furnas Reservoir: initial survey of species (1993) and review of literature, 93-114pp. In: **Ecology and Human Impact on Lakes and Reservoirs in Minas Gerais with Special Reference to Future Development and Management Strategies**. (R.M. Pinto-Coelho, E. Giani & E. Von Sperling, Eds.). SEGRAC, Belo Horizonte.
- Reid, J.W., R.M. Pinto-Coelho & A. Giani, 1988. Uma apreciação da fauna de copépodos (Crustacea) da região de Belo Horizonte, com comentários sobre espécies de Minas Gerais. **Acta Limnologica Brasiliensia** 2: 527-547.
- Reid, J. W. & P.N. Turner, 1988. Planktonic Rotifera, Copepoda and Cladocera from lagos Açú and Viana, State of Maranhão, Brasil. **Revista Brasileira de Biologia** 48: 485-495.
- Richard, J., 1897a. Entomostracés de l'Amérique du Sud, recueillis par MM. U. Deiters, H. von Ihering, G. W. Müller et C. O. Poppe. **Mémoires de la Société Zoologique de France** 10: 263-301.
- Richard, J., 1897b. Sur quelques entomostracés d'eau douce des environs de Buenos Aires. **Anales del Museo Nacional de Historia Natural de Buenos Aires** 5: 321-331.
- Ringuelet, R.A., 1955. Ubicación zoogeográfica de las Islas Malvinas. **Revista del Museo de La Plata**, Nueva Serie 6, Sección Zoología 48: 419-464.
- Ringuelet, R.A., 1958a. Los crustáceos copépodos de las aguas continentales en la República Argentina. Sinopsis sistemática. **Contribuciones Científicas, Universidad de Buenos Aires**, Serie Zoología 1: 35-126.
- Ringuelet, R.A., 1958b. Primeros datos ecológicos sobre copépodos dulciacuícolas de la República Argentina. **Physis**, Buenos Aires 21(60): 14-31.
- Ringuelet, R.A. 1962. Rasgos faunísticos de las reservas naturales de la Provincia de Buenos Aires. **Physis**, Buenos Aires 23(64): 83-92.
- Ringuelet, R.A., 1968. Biogéographie des Copépodes d'eau

- douce de l'Argentine. **Biologie de l'Amérique Australe** 6: 261-267.
- Ringuelet, R.A. & A. Martínez de Ferrato, 1967. Notas sobre diatómidos argentinos (Crustacea, Copepoda). **Physis**, Buenos Aires 26(73): 411-420.
- Robertson, B.A. & E.R. Hardy, 1984. Zooplankton of Amazonian lakes and rivers, 337-352. pp. *In: The Amazon. Limnology and Landscape Ecology of a Mighty Tropical River and Its Basin*. (H. Sioli, Ed.), Monographiae Biologicae 56. Dr. W. Junk Publishers, Dordrecht.
- Rocha, O. & T. Matsumura-Tundisi, 1976. **Atlas do Zooplâncton (Represa do Broa, São Carlos). Vol. I - Copepoda**. Universidade Federal de São Carlos, São Carlos, 68p.
- Rocha, O. & T. Matsumura-Tundisi, 1984. Biomass and production of *Argyrodiaptomus furcatus*, a tropical calanoid copepod in Broa Reservoir, southern Brasil. **Hydrobiologia** 113: 307-311.
- Rocha, O. & T. Matsumura-Tundisi, 1997. Respiration rates of zooplankton community of epilimnion and metalimnion layers of Lake Dom Helvécio during stratified and overturn periods, 285-296pp. *In: Limnological Studies on the Rio Doce Valley Lakes, Brasil*. (J.G. Tundisi & Y. Saijo, Eds.). Brazilian Academy of Sciences. University of São Paulo, School of Engineering at São Carlos, Center for Water Resources and Applied Ecology, São Carlos.
- Rocha, O., T. Matsumura-Tundisi, J.G. Tundisi & C.P. Fonseca, 1990. Predation on and by pelagic Turbellaria in some lakes in Brasil. **Hydrobiologia** 198: 91-101.
- Rocha, O., A.C. Rietzler, E.G. Espíndola, T. Matsumura-Tundisi & H.J. Dumont, 1998. Diversity of fauna in sand dune lakes of Lençóis Maranhenses, Brasil, I: the zooplankton community. **Anais da Academia Brasileira de Ciências** 70: 793-795.
- Rocha, O., S. Sendacz & T. Matsumura-Tundisi, 1995. Composition, biomass and productivity of zooplankton in natural lakes and reservoirs of Brasil, 151-165pp. *In: Limnology in Brasil*. (J.G. Tundisi, C.E.M. Bicudo & T. Matsumura-Tundisi, Eds.). ABC/SBL, Rio de Janeiro.
- Rolla, M.E., M.B.G.S. Dabés, R.C. França & E.M.V.M. Ferreira, 1990. Aspectos limnológicos do reservatório de Volta Grande, Minas Gerais/São Paulo. **Acta Limnologica Brasiliensia** 3: 219-244.
- Rolla, M.E., M.B.G.S. Dabés, R.C. França & E.M.V.M. Ferreira, 1992. Inventário limnológico do rio Grande na área de influência de futura usina hidrelétrica (UHE) de Igarapava. **Acta Limnologica Brasiliensia** 4: 139-162.
- Rylov, V.M., 1933. Résultats scientifiques de l'expédition hydrofaunistique du Musée Zoologique dans la Sibérie orientale en 1927. IV. Les eucopépodes d'eau douce de la région du l'Oussouri (Crustacea). **Travaux de l'Institut Zoologique de l'Académie de Sciences**, Leningrad 1: 243-280 + pls. 1-6. (In Russian; summary in French.)
- Saijo, Y. & J.G. Tundisi, 1997. Synthesis, 485-491pp. *In: Limnological Studies on the Rio Doce Valley Lakes, Brasil*. (J.G. Tundisi & Y. Saijo, Eds.). Brazilian Academy of Sciences. University of São Paulo, School of Engineering at São Carlos, Center for Water Resources and Applied Ecology, São Carlos.
- Santos-Silva, E.N., 1991. Composição, abundância e reprodução de Calanoida (Copepoda) do lago Calado, Amazônia Central. **M.Sc. Dissertation**, INPA-FUA, Manaus, 143p.
- Santos-Silva, E.N., 1998. Maxillopoda - Copepoda. Freshwater Calanoida, 201-220pp. *In: Catalogue of Crustacea of Brasil*. (P.S. Young, Ed.). Museu Nacional, Rio de Janeiro, Série Livros 6, 717p.
- Santos-Silva, E.N., G.A. Boxshall & C.E.F. Rocha, 1999. The neotropical genus *Notodiatomus* Kiefer, 1936 (Calanoida: Diaptomidae): redescription of the type species *Notodiatomus deitersi* (Poppe, 1891) and designation of a neotype. **Studies on Neotropical Fauna and Environment** 34: 114-128.
- Santos-Silva, E.N. & B.A. Robertson, 1993. A new species of *Rhacodiatomus* Kiefer, 1936 from the Brazilian Amazon (Crustacea: Copepoda: Calanoida). **Acta Amazonica** 23: 95-105.
- Santos-Silva, E.N., B.A. Robertson, J.W. Reid & E.R. Hardy, 1989. Atlas de copépodos planctônicos, Calanoida e Cyclopoida (Crustacea), da Amazônia Brasileira. I. Represa de Curuá-Una, Pará. **Revista Brasileira de Zoologia** 6: 725-758.
- Sars, G.O., 1894. Contributions to the knowledge of the freshwater Entomostraca of New Zealand as shown by artificial hatching from dried mud. **Forhandlinger Videnskabs-Selskabs**, Christiana 1894, 5: 1-62.
- Sars, G.O., 1901. Contribution to the knowledge of the fresh-water Entomostraca of South America, as shown by artificial hatching from dried material. Part II. Copepoda - Ostracoda. **Archiv für Mathematik og Naturvidenskab**, Christiana 24: 1-52 + pls. 1-8.
- Sars, G.O., 1903. An Account of the Crustacea of Norway 4. Copepoda Calanoida. **Bergen Museum** 4: 145-171.
- Sars, G.O., 1909. Fresh-water Entomostraca from South Georgia. **Archiv für Mathematik og Naturvidenskab**, Christiana 30: 3-35 + pls. 1-4.
- Schmeil, O., 1897. Deutschlands freilebende Süßwasser-Copepoden. Nachtrag zu den Familien der Cyclopiden und Centropagiden. Begleitwort zu der Bearbeitung der Süßwasser-Cyclopiden und -Centropagiden im "Tierreiche". **Bibliotheca Zoologica**, Stuttgart 8(21): 145-188 + pls. 13, 14.
- Scott, T., 1914. Remarks on some Copepoda from the Falkland Islands collected by Mr. Rupert Vallentin, F.L.S. **Annals and Magazine of Natural History**, Series 8, 13: 369-379 + pls. 13-16.
- Sendacz, S., 1984. A study of the zooplankton community of Billings Reservoir - São Paulo. **Hydrobiologia** 113: 121-127.

- Sendacz, S., 1993. Distribuição geográfica de alguns organismos zooplancônicos na América do Sul. **Acta Limnologica Brasiliensia** 7: 31-34.
- Sendacz, S., 1997. Zooplankton studies of floodplain lakes of the Upper Paraná River, São Paulo State, Brasil. **Verhandlungen der Internationale Vereinigung für Limnologie** 26: 621-627.
- Sendacz, S. & E. Kubo, 1982. Copepoda (Calanoida e Cyclopoida) de reservatórios do Estado de São Paulo. **Boletim do Instituto de Pesca**, São Paulo 9: 51-89.
- Sendacz, S. & E. Kubo, 1999. Zooplâncton de reservatórios do alto do Tietê, Estado de São Paulo, 511-529pp. *In: Ecologia de Reservatórios: Estrutura, Função e Aspectos Sociais*. (R. Henry, Ed.), UNDIBIO-FAPESP, Botucatu.
- Sendacz, S., E. Kubo & M.A. Cestarolli, 1985. Limnologia dos reservatórios do Estado de São Paulo, Brasil. VIII. Zooplâncton. **Boletim do Instituto de Pesca**, São Paulo 12: 187-207.
- Sendacz, S., E. Kubo & L.P. Fujiara, 1984. Further studies on the zooplankton community of a eutrophic reservoir in southern Brasil. **Verhandlungen der Internationale Vereinigung für Limnologie** 22: 1625-1630.
- Sendacz, S. & S.S. Melo Costa, 1991. Caracterização do zooplâncton do rio Acre e lagos Lua Nova, Novo Andará e Amapá (Amazônia, Brasil). **Revista Brasileira de Biologia** 51: 463-470.
- Shen, C.J. & A.Y. Tai, 1964. Description of eight new species of freshwater Copepoda (Calanoida) from the delta of the Pearl River, South China. **Acta Zoologica Sinica** 16: 225-246.
- Sipaúba-Tavares, L.H. & T. Matsumura-Tundisi, 1984. Feeding in adult females of *Argyrodiaptomus furcatus* (Sars, 1901), Copepoda-Calanoida, of Lobo Reservoir (Broa), São Carlos, São Paulo, Brasil. **Hydrobiologia** 113: 15-23.
- Spandl, H., 1926. Das Zooplankton des Paranagua-Sees. **Denkschriften der Akademie der Wissenschaften zu Wien** 76: 101-105.
- Stingelin, T. 1904. Entomostraken gesammelt von Dr. G. Hagmann im Mündungsgebiet des Amazonas. **Zoologische Jahrbücher, Systematik, Ökologie und Geographie der Tiere** 20: 575-590.
- Thiébaud, M., 1912. Copépodes de Colombie et des Cordillères de Mendoza. **Mémoires de la Société Neuchâteloise des Sciences Naturelles** 5: 160-175.
- Thomasson, K., 1953. Studien über das südamerikanische Süßwasserplankton. 2. Zur Kenntnis des Südamerikanischen Zooplanktons. **Arkiv för Zoologi** 6: 189-194.
- Thomasson, K., 1955. Studies on South American freshwater plankton. 3. Plankton from Tierra del Fuego and Valdivia. **Acta Horti Gothoburgensis** 19: 193-225.
- Thomson, G.M., 1883. On the New Zealand Copepoda. **Transactions and Proceedings of the New Zealand Institute** 15: 93-116 + pls. 5-11.
- Timms, B.V. & D.W. Morton, 1988. Crustacean zooplankton assemblages in freshwaters of tropical Australia. **Hydrobiologia** 164: 161-169.
- Tollinger, M.A., 1911. Die geographische Verbreitung der Diptomiden und anderer Süß- und Brackwasser-Gattungen aus der Familie der Centropagiden. **Zoologische Jahrbücher, Systematik, Ökologie und Geographie der Tiere** 30: 1-302 + pl. 14.
- Tomm, I., M.G.G. Pozzobon, M.L.S.R. Dalla Costa & F.A. Lansac-Tôha, 1992. Distribuição vertical noturna de crustáceos planctônicos em um braço do reservatório de Itaipu-PR. **Revista Unimar**, Maringá 14 (suplemento): 57-72.
- Tundisi, J.G. & T. Matsumura-Tundisi, 1981. Estudos limnológicos no sistema de lagos do médio Rio Doce, Minas Gerais, Brasil. **Seminário Regional de Ecologia**, São Carlos 2: 135-258.
- Tundisi, J.G. & T. Matsumura-Tundisi, 1994. Plankton diversity in a warm monomictic lake (Dom Helvecio, Minas Gerais) and a polymictic reservoir (Barra Bonita): A comparative analysis of the intermediate disturbance hypothesis. **Anais da Academia Brasileira de Ciências**, 6 (suplemento) 1, parte I: 15-28.
- Tundisi, J.G. & T. Matsumura-Tundisi, 1995a. Limnology of a warm monomictic lake at Rio Doce Forest Park (Lake Dom Helvecio, Minas Gerais, eastern Brasil), 245-256pp. *In: Limnology in Brasil*. (J.G. Tundisi, C.E.M. Bicudo & T. Matsumura-Tundisi, Eds.). ABC/SBL, Rio de Janeiro.
- Tundisi, J.G. & T. Matsumura-Tundisi, 1995b. The Lobo-Broa Ecosystem Research, 219-243pp. *In: Limnology in Brasil*. (J.G. Tundisi, C.E.M. Bicudo & T. Matsumura-Tundisi, Eds.). ABC/SBL, Rio de Janeiro.
- Tundisi, J.G., T. Matsumura-Tundisi, H. Fukuara, O. Mitamura, S.M. Guillén, R. Henry, O. Rocha, M.C. Calijuri, M. Socorro, R. Ibañez, E.L.G. Espíndola & S. Govoni, 1997. Limnology of fifteen lakes, 409-439pp. *In: Limnological Studies on the Rio Doce Valley Lakes, Brasil*. (J.G. Tundisi & Y. Saijo, Eds.). Brazilian Academy of Sciences. University of São Paulo, School of Engineering at São Carlos, Center for Water Resources and Applied Ecology, São Carlos.
- Twombly, S., 1994. Comparative demography and population dynamics of two coexisting copepods in a Venezuelan floodplain lake. **Limnology and Oceanography** 39: 234-247.
- Twombly, S. & W.M. Lewis, Jr., 1987. Zooplankton abundance and species composition in Laguna Orsinera, a Venezuelan floodplain lake. **Archiv für Hydrobiologie**, Supplementband 79: 87-107.
- Valentin, J.L., 1994. Diagnóstico ambiental oceânico e costeiro das regiões Sul e Sudeste do Brasil 4: 29-40.
- Valentin, J.L., W. Monteiro-Ribas, M.A. Mureb & E. Pessotti, 1987. Sur quelques zooplanctons abondants dans l'upwelling de Cabo Frio (Brasil). **Journal of Plankton Research** 9: 1195-1216.

- Vega-Pérez, L.A., 1993. Zooplâncton, 65-84pp. In: **Estrutura e Função do Ecossistema da Plataforma Continental do Atlântico Sul Brasileiro**. (A.M.S. Pires Vanin, Ed.). Publicações Especiais do Instituto Oceanográfico da Universidade de São Paulo 10, 245p.
- Walter, T.C., 1984. New species of *Pseudodiaptomus* from the Indo-Pacific, with a clarification of *P. aurivilli* and *P. mertoni* (Crustacea: Copepoda: Calanoida). **Proceedings of the Biological Society of Washington** 97: 369-391.
- Walter, T.C., 1986a. New and poorly known Indo-Pacific species of *Pseudodiaptomus* (Copepoda: Calanoida), with a key to the species groups. **Journal of Plankton Research** 8: 129-168.
- Walter, T.C., 1986b. The zoogeography of the genus *Pseudodiaptomus* (Calanoida: Pseudodiaptomidae). **Syllogeus** 58: 502-508.
- Walter, T.C., 1987. Review of the taxonomy and distribution of the demersal copepod genus *Pseudodiaptomus* (Calanoida: Pseudodiaptomidae) from southern Indo-West Pacific waters. **Australian Journal of Marine and Freshwater Research** 38: 363-396.
- Walter, T.C., 1989. Review of the New World species of *Pseudodiaptomus* (Copepoda: Calanoida), with a key to the species. **Bulletin of Marine Science** 45: 590-628.
- Weller, D.L.M., 1977. Observations on the diet and development of *Pseudoboeckella poppei* Mrázek (Calanoida, Centropagidae) from an Antarctic lake. **British Antarctic Survey Bulletin** 45: 77-92.
- Wilson, M.S., 1953. New and inadequately known North American species of the copepod genus *Diaptomus*. **Smithsonian Miscellaneous Collections** 122: 1-30.
- Wright, S., 1927. A revision of the South American species of *Diaptomus*. **Transactions of the American Microscopical Society** 46: 73-121.
- Wright, S., 1928. A contribution to the knowledge of the genus *Pseudodiaptomus*. **Transactions of the Wisconsin Academy of Sciences, Arts, and Letters** 23: 587-599 + pl. 12.
- Wright, S., 1935. Three new species of *Diaptomus* from Northeast Brasil. **Anais da Academia Brasileira de Ciências** 7: 213-233 + pls. 1-4.
- Wright, S., 1936a. Preliminary report on six new species of *Diaptomus* from Brasil. **Anais da Academia Brasileira de Ciências** 8: 79-85 + pls. 1, 2.
- Wright, S., 1936b. A revision of the South American species of *Pseudodiaptomus*. **Anais da Academia Brasileira de Ciências** 8: 1-24 + pls. 1-3.
- Wright, S., 1937a. A review of some species of *Diaptomus* from São Paulo. **Anais da Academia Brasileira de Ciências** 9: 65-82 + pls. 1-3.
- Wright, S., 1937b. Two new species of *Pseudodiaptomus*. **Anais da Academia Brasileira de Ciências** 9: 155-162 + pls. 1, 2.
- Wright, S., 1938a. A review of the *Diaptomus bergi* group, with description of two new species. **Transactions of the American Microscopical Society** 57: 297-315 + pls. 1, 2.
- Wright, S., 1938b. Distribuição geográfica das espécies de *Diaptomus* na América do Sul, 561-566pp. + 1 map. In: **Livro Jubilar do Professor Travassos**. Typ. Instituto Osvaldo Cruz, Rio de Janeiro.
- Wright, S., 1939. Algunas especies del genero “*Diaptomus*” (Copepoda-Calanoida) halladas en la Republica Argentina. **Physis**, Buenos Aires 17: 645-649.
- Young, P.S. 1998. **Catalogue of Crustacea of Brasil**. Museu Nacional, Rio de Janeiro, Série Livros 6, 717p.
- Zoppi de Roa, E., 1994. Seasonal variations of copepods from a flooding savanna of Venezuela. **Verhandlungen der Internationale Vereinigung für Limnologie** 25: 1383-1388.
- Zúñiga, L.R., 1975. Sobre *Diaptomus diabolicus* Brehm (Crustacea, Copepoda, Calanoida). **Noticiario Mensual del Museo Nacional de Historia Natural**, Santiago 19: 3-9.

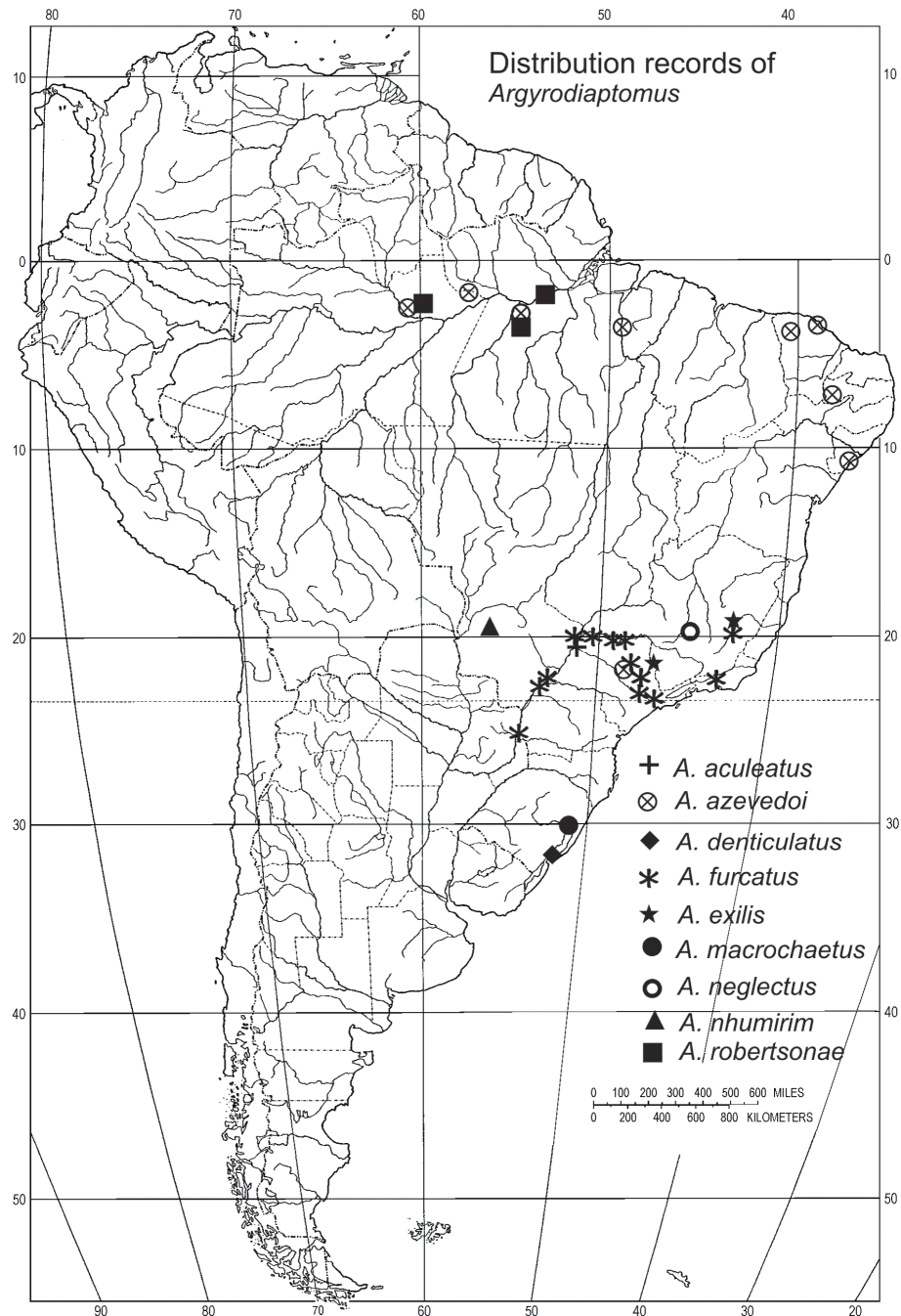


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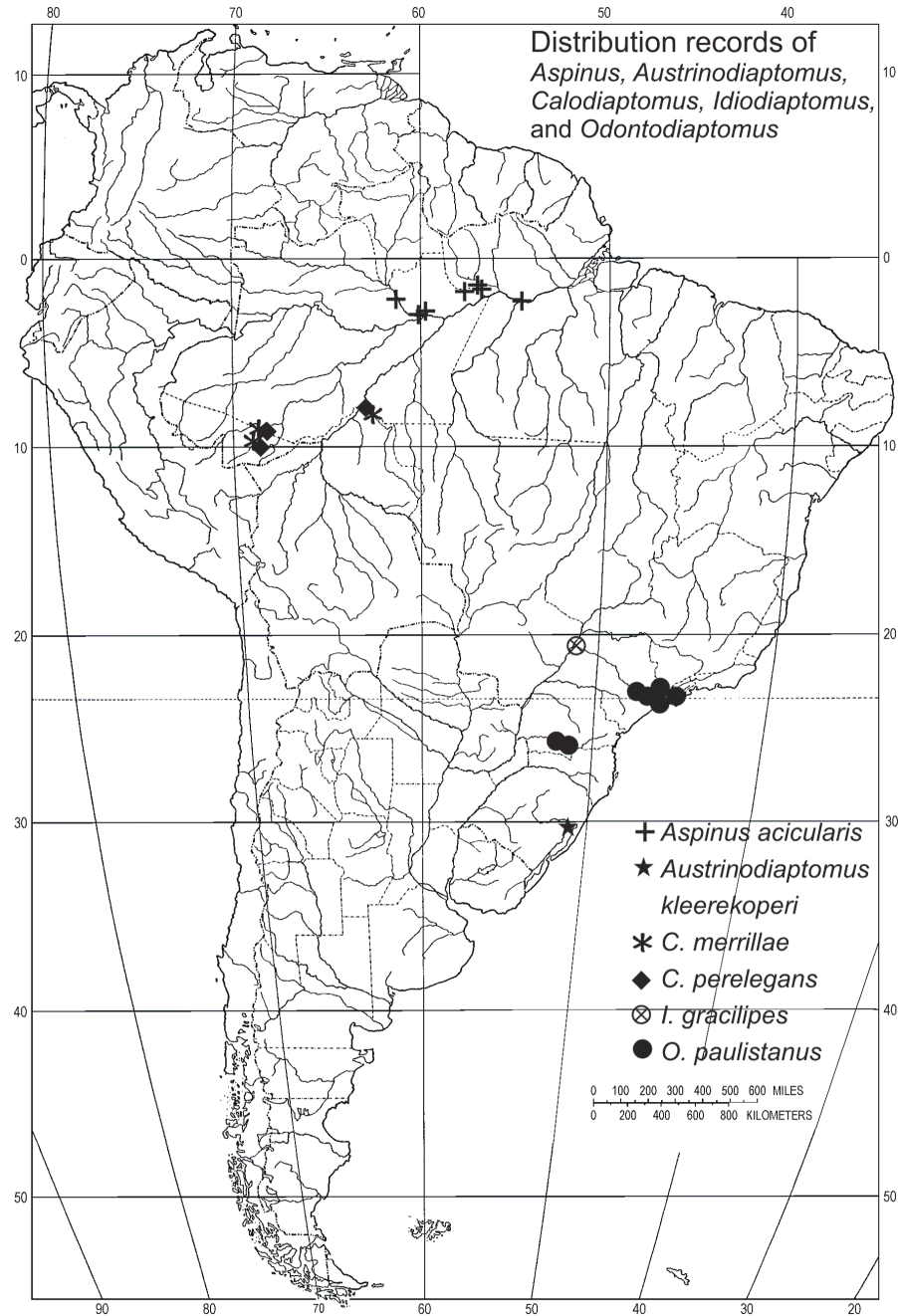


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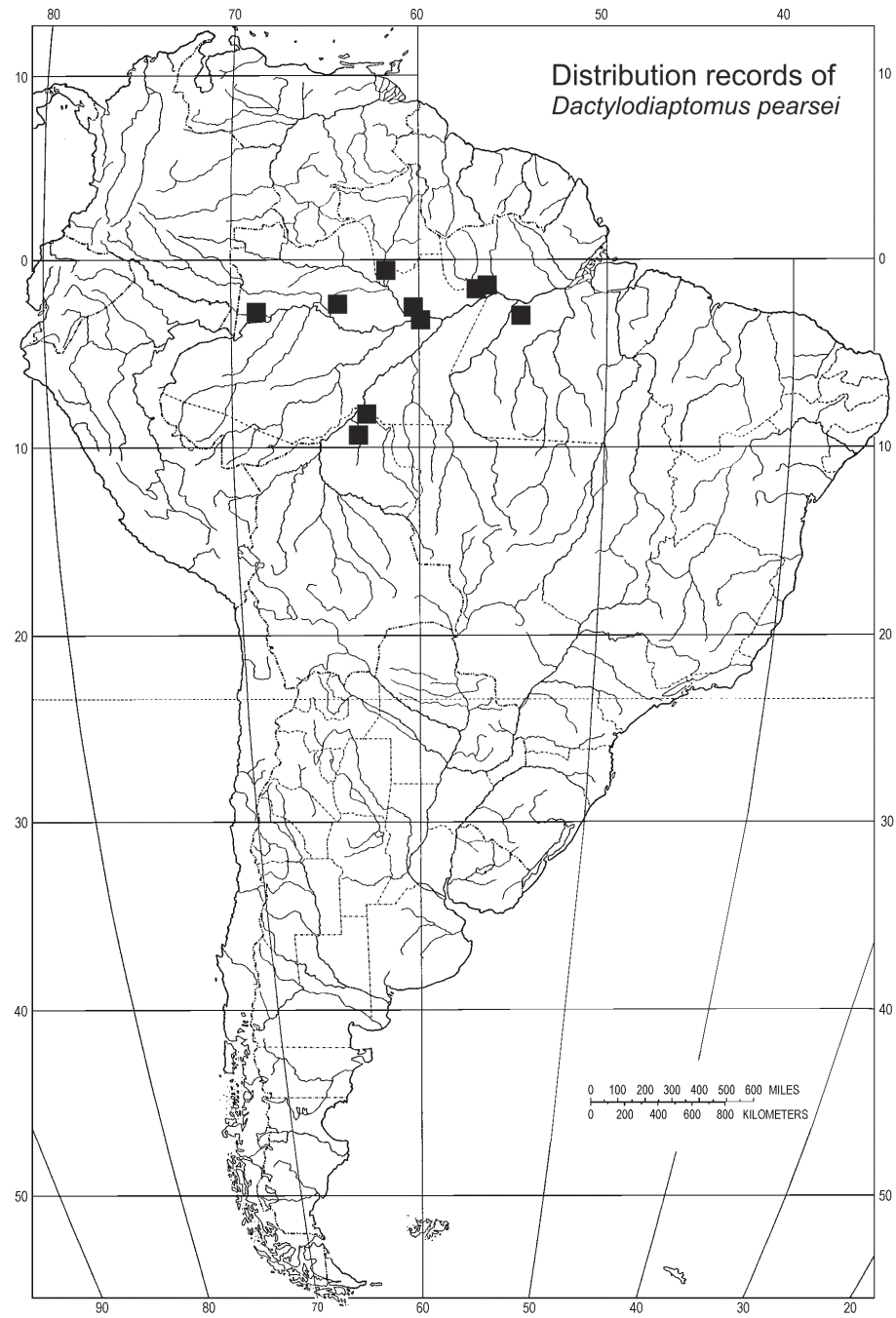


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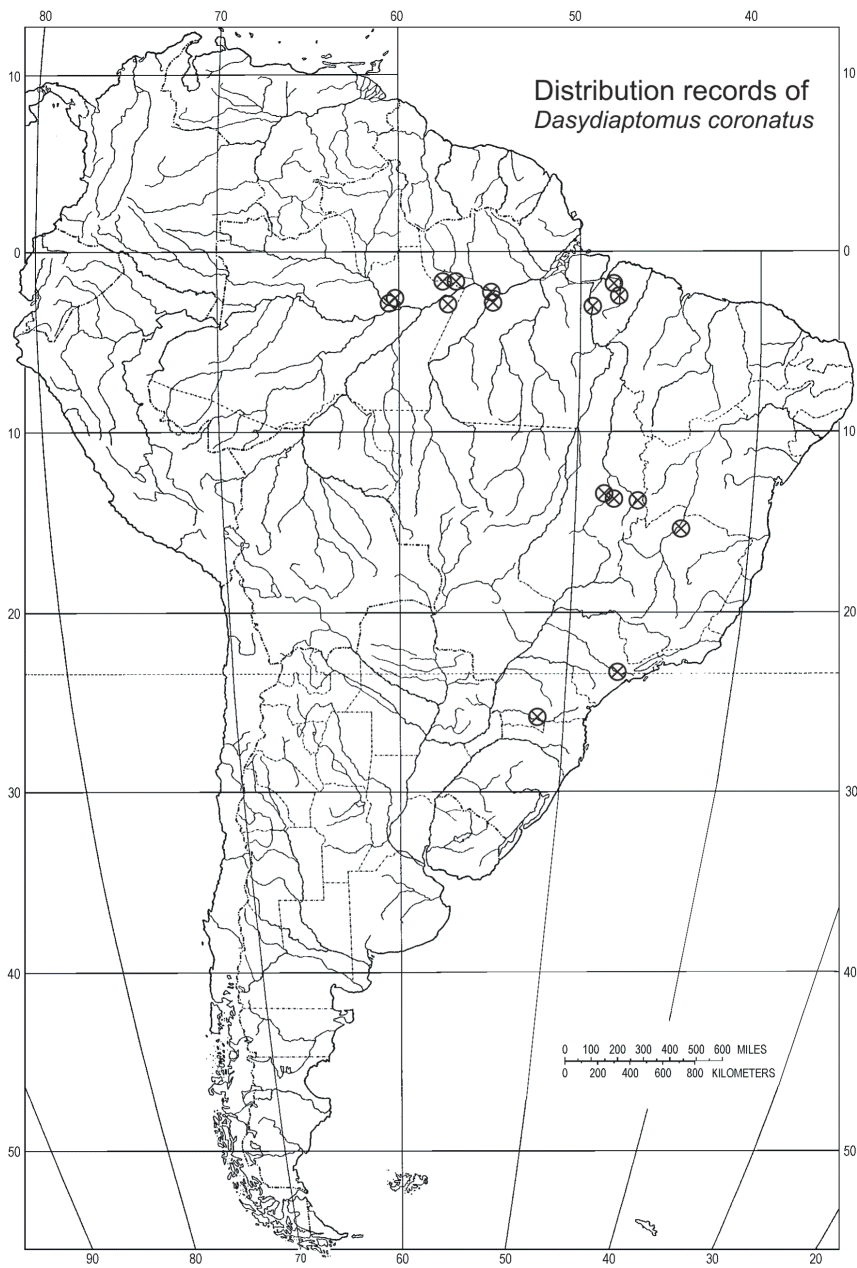


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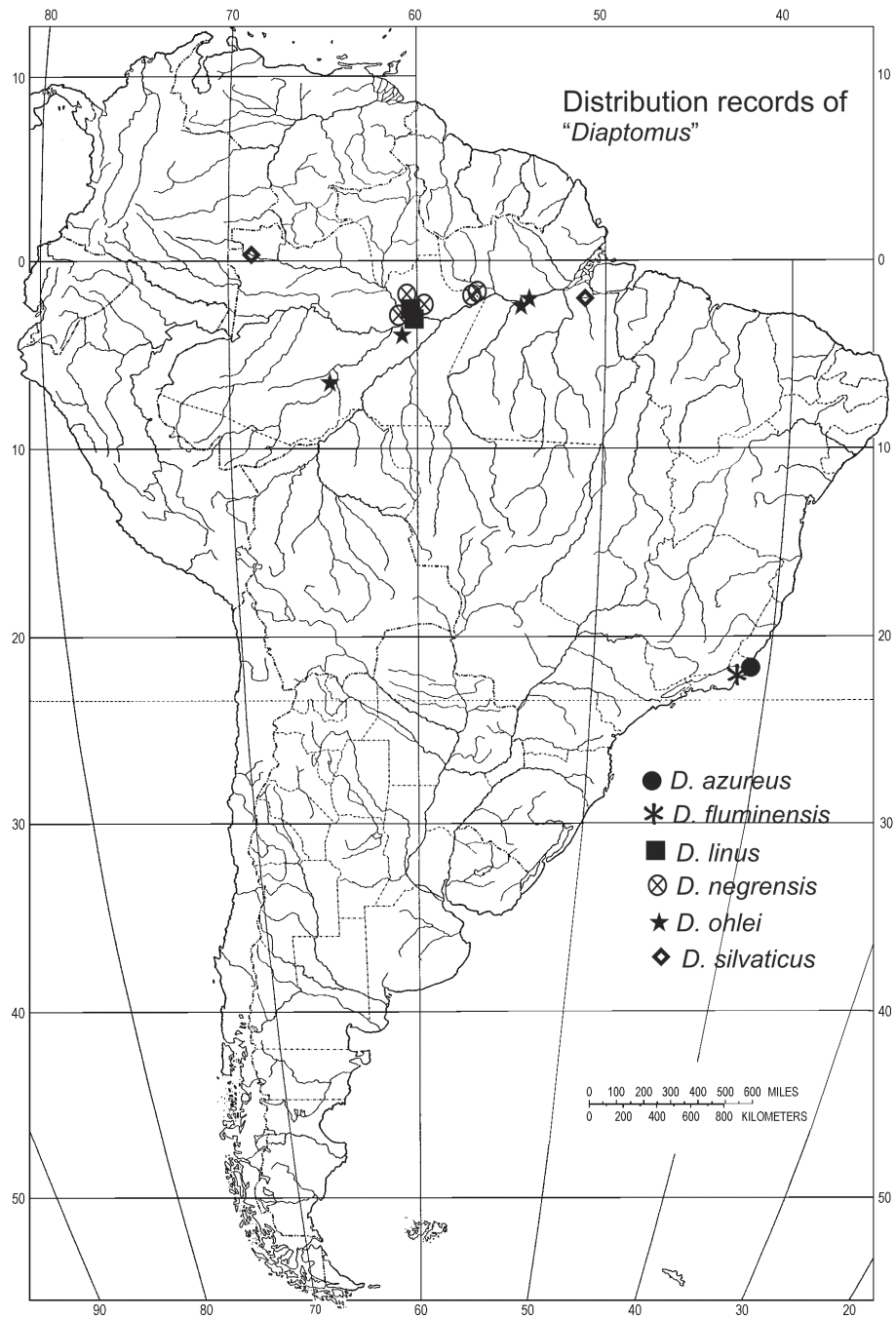


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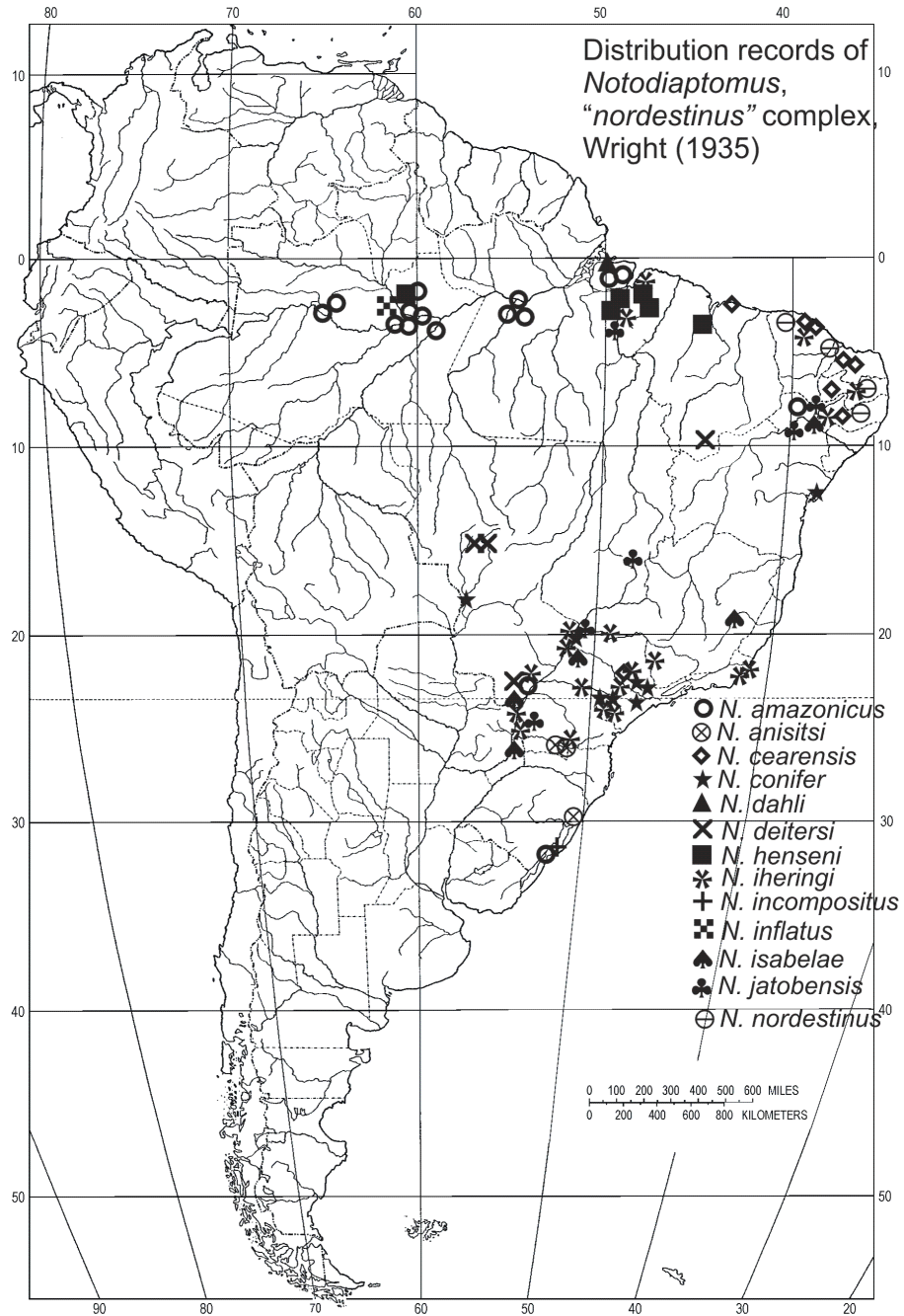


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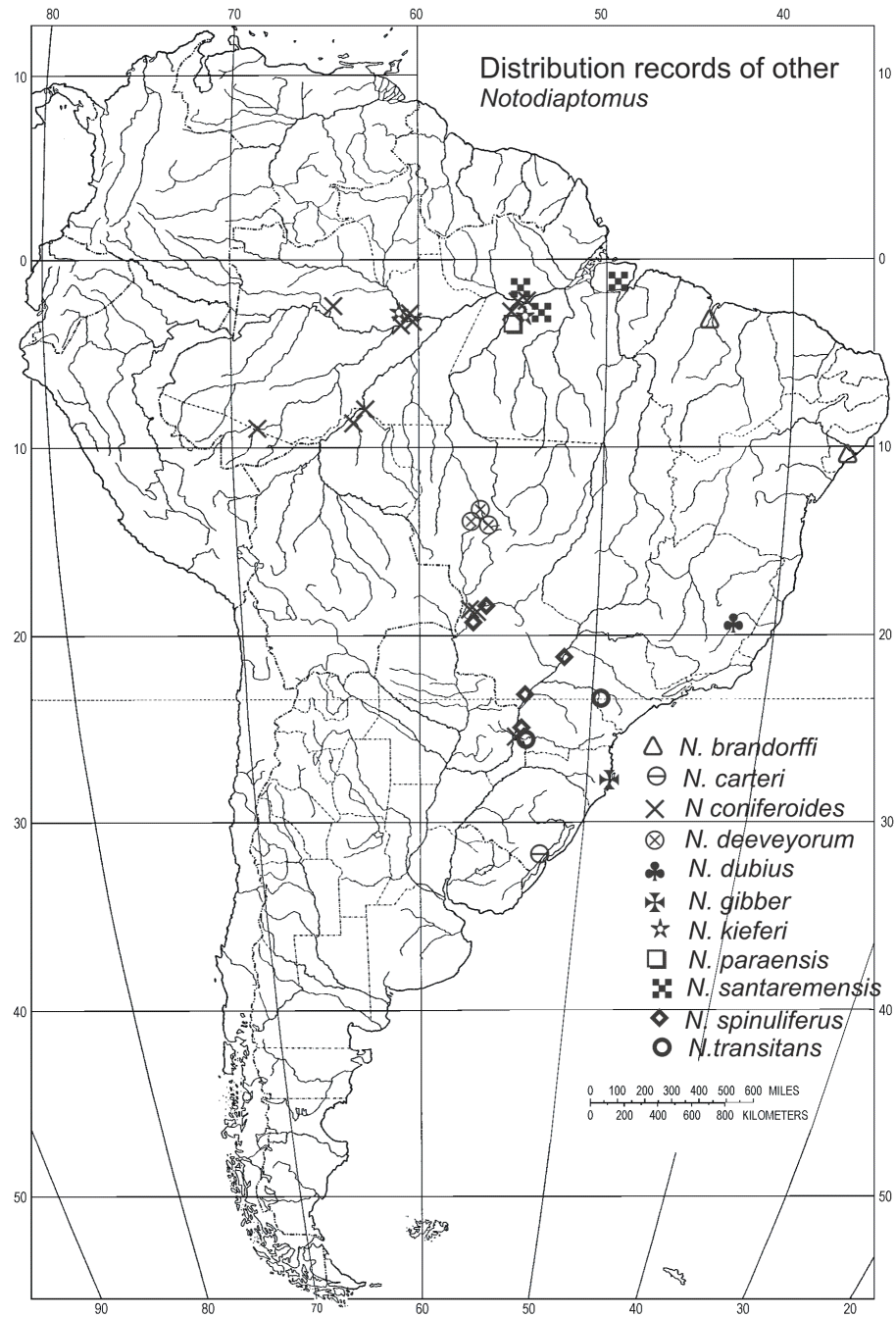


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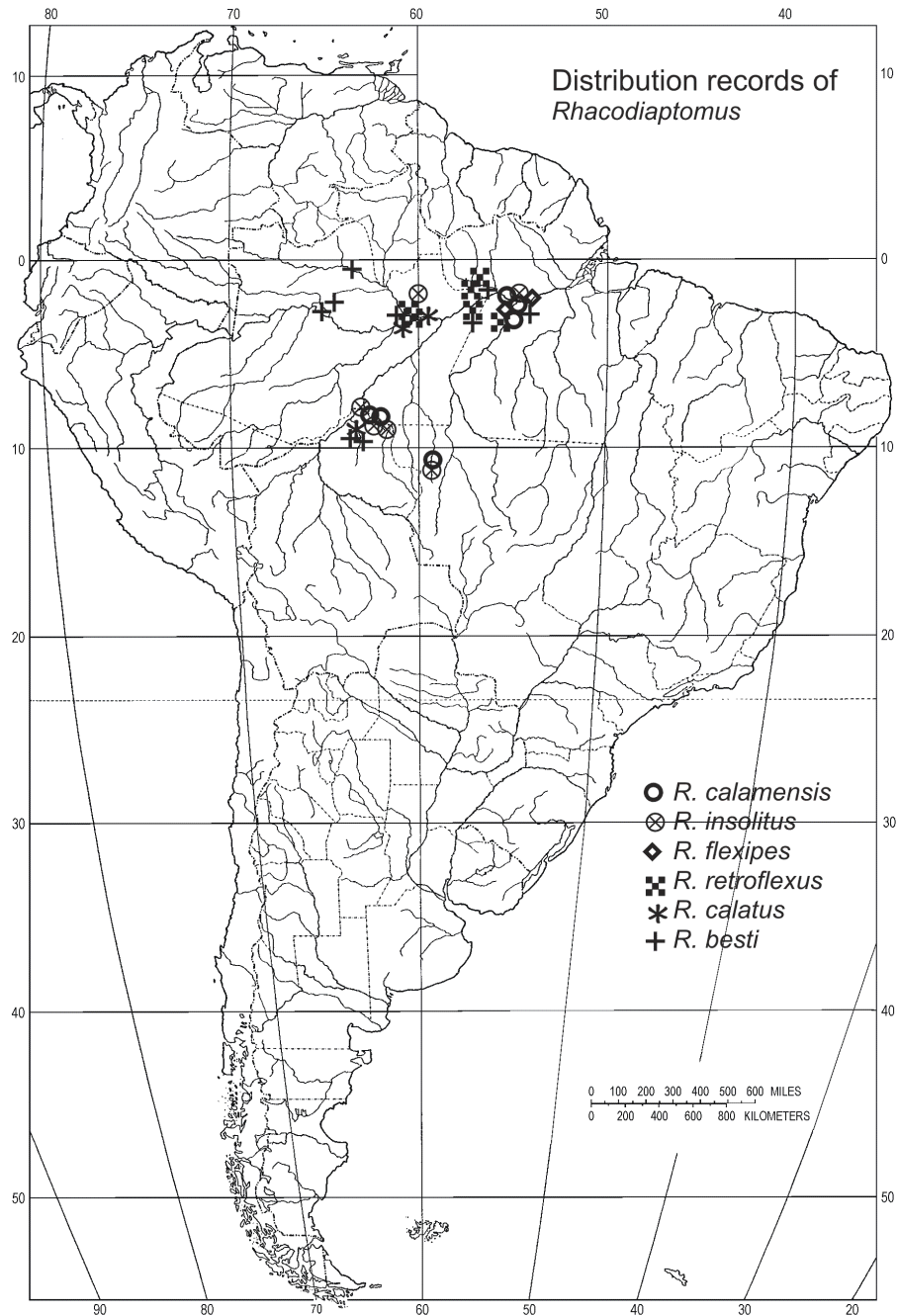


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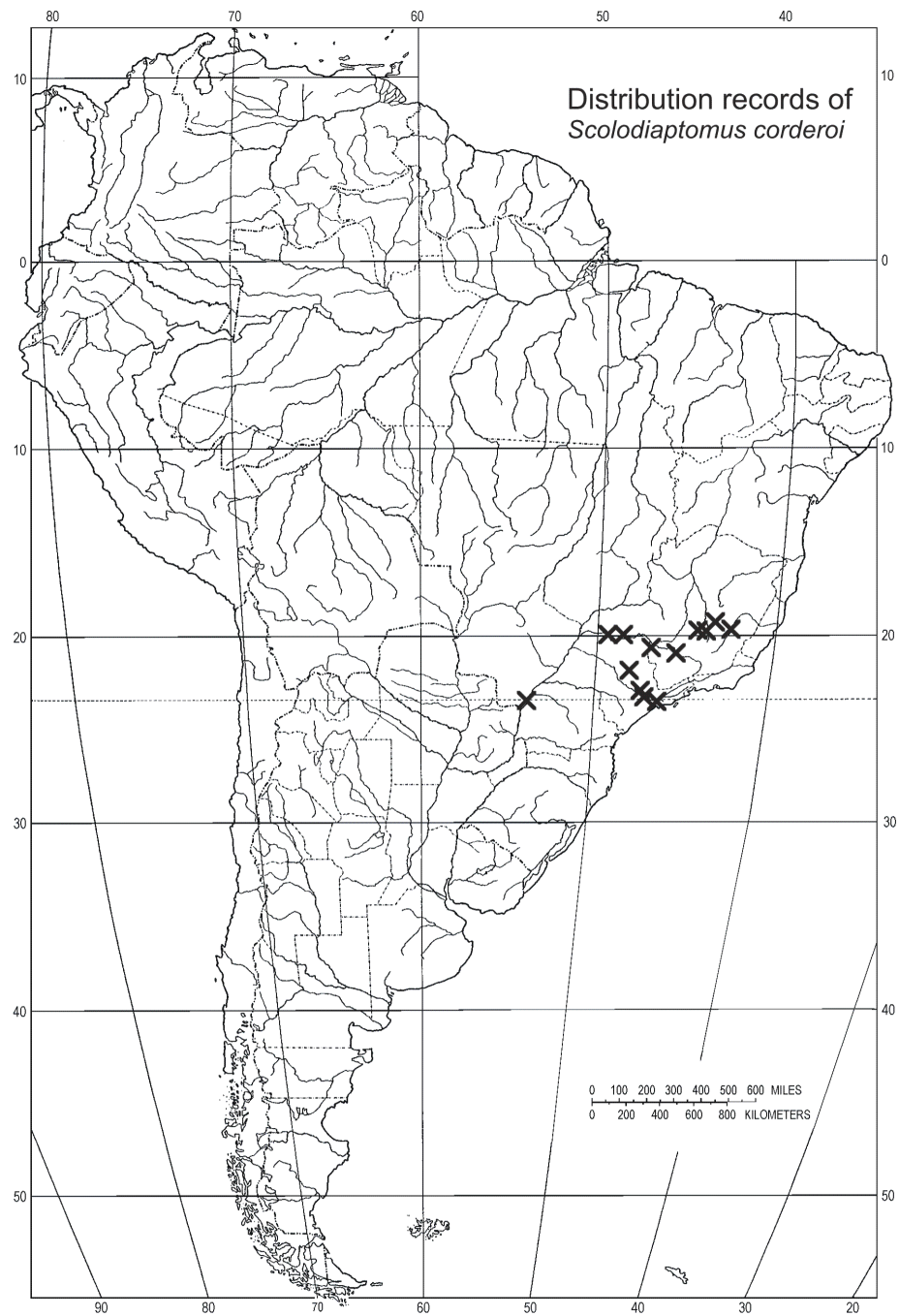


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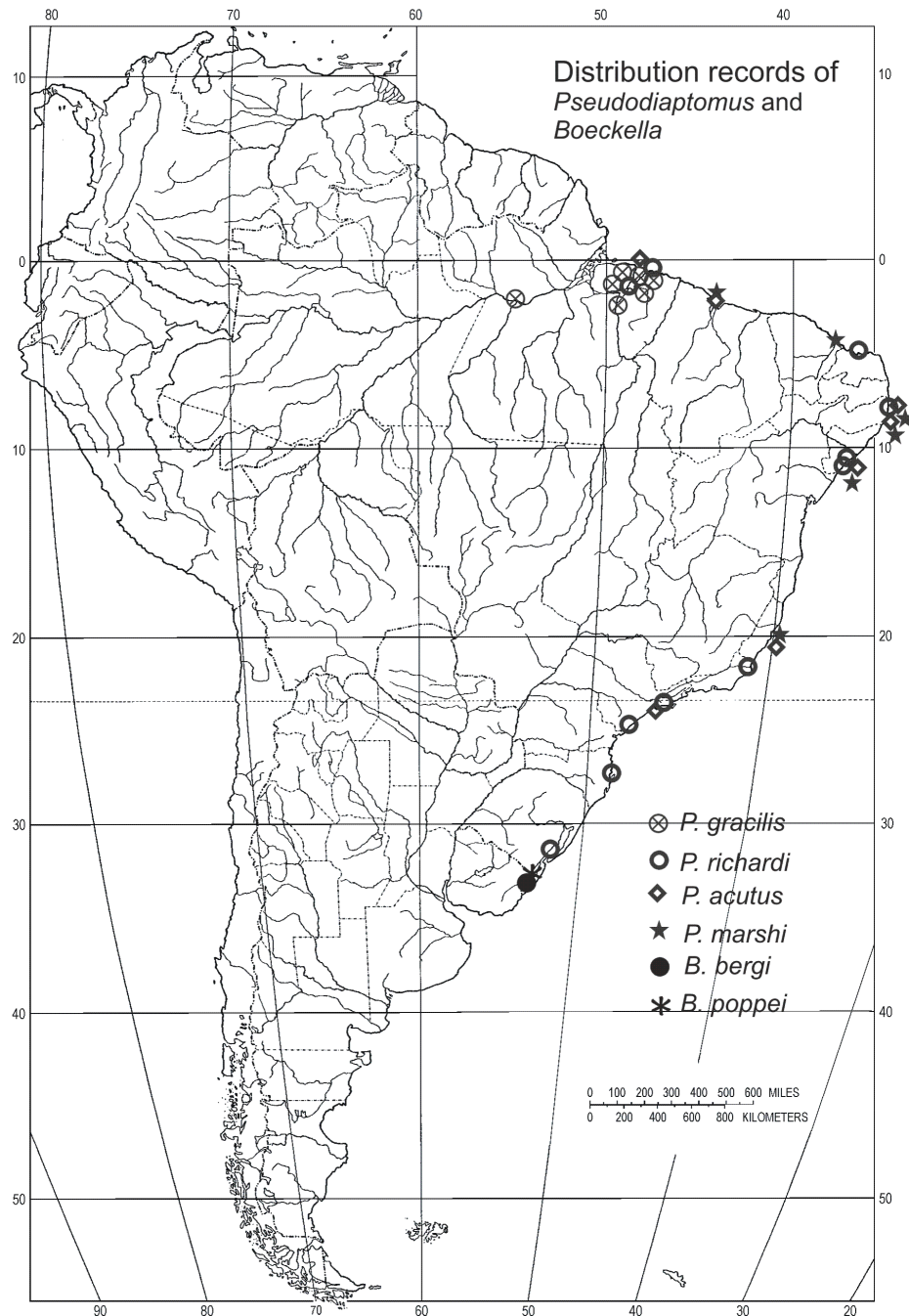


Figura 10

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